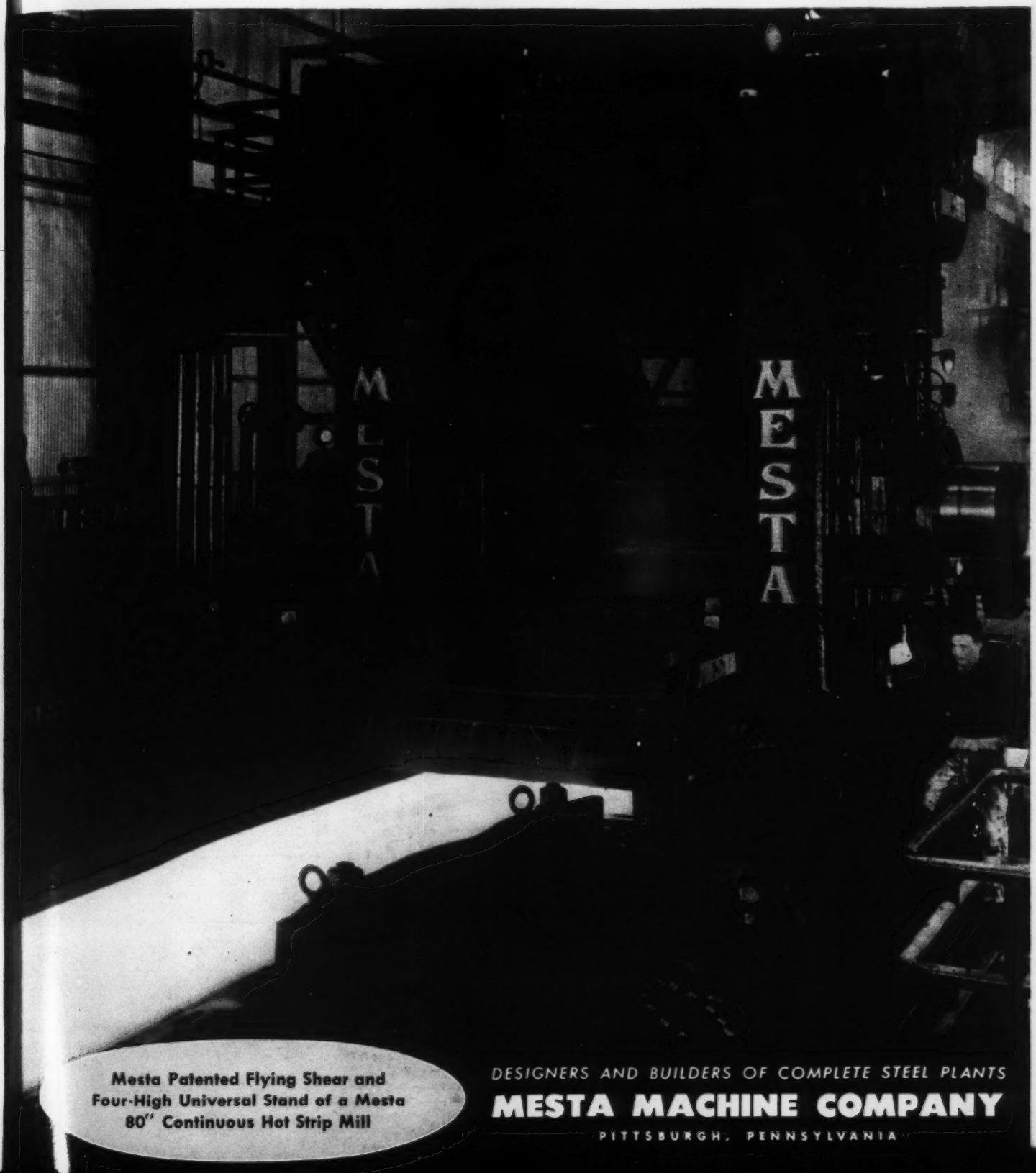
UNIV OF MICHIGAN
JUL 10 1950
EAST ENGINEERING

July 10, 1950

STEEL

The Magazine of Metalworking and Metalproducing

CONTENTS — PAGE 47



Mesta Patented Flying Shear and Four-High Universal Stand of a Mesta 80" Continuous Hot Strip Mill

DESIGNERS AND BUILDERS OF COMPLETE STEEL PLANTS

MESTA MACHINE COMPANY

PITTSBURGH, PENNSYLVANIA

HERE'S WHAT ALLIS-CHALMERS MOTOR "Certified" SERVICE MEANS TO YOU

W. L. Manly, Mgr.
Dealer Sales Dept.
ALLIS-CHALMERS

"THE WORD SERVICE has more meanings than there are definitions in a dime store dictionary. It is often used insincerely as a catchword lure . . . a pretense as shallow as frost on a window. To others, *service is a natural and obligatory* complement of selling . . . helping customers select what best fits their needs, filling the order accurately and promptly, and insuring that performance fulfills the promise.

"The meaning of Allis-Chalmers *Certified Service* is clear and unequivocal. It backs up product performance and assures the buyer that dependable Certified Service is conveniently close.

"It is unique, efficient and sound. *Unique*, because it allies Allis-Chalmers with ***independently*** owned and operated shops. *Efficient*, because it minimizes delay and eliminates heavy transportation expenses. *Sound*, because the work is performed by reliable and experienced concerns.

"This policy is practiced by all of the 82 A-C Certified Service Shops in every major U. S. industrial area."

NEW MOTORS AND CONTROLS, TOO

Remember — your nearest A-C Authorized Dealer or Certified Service Shop also offers a complete line of new motors and controls to 200 hp.

ALLIS-CHALMERS, 1021A SO. 70 ST. MILWAUKEE, WIS.

A-3079

THERE ARE 82 ALLIS-CHALMERS "Certified" Service Shops THROUGHOUT THE U.S.A.!

ALABAMA
Birmingham—Elect. Repair & Serv. Co.
Montgomery—Standard Electric Co.

ARIZONA
Bisbee—Copper Electric Co., Inc.

CALIFORNIA
San Diego—Calif. Elect. Works
Los Angeles—Larsen-Hogue Elec. Wks.
Oakland—T. L. Rosenberg Company
San Francisco—Weidenthal-Gosliner
San Jose—Rosendin Elec. Works

COLORADO
Denver—Baker Electric Company

CONNECTICUT
Hartford—Charles H. Leppert
Waterbury—Elec. Motor Repair Co.

FLORIDA
Jacksonville—Turner Elec. Works
Miami—Penninsular Armature Wks.
Tampa—Tampa Armature Works

GEORGIA
Atlanta—Bearden-Thompson Elec. Co.
Columbus—Smith-Gray Electric Co.

ILLINOIS
Chicago—Chicago Electric Company
Marion—Giles Armature & Elec. Wks.

INDIANA
Indianapolis—Scherer Electric Co.
Evansville—Evansville Elec. & Mfg. Co.

IOWA
Sioux City—Smith Elec. & Supply Co.

KANSAS
Wichita—Tarrant Elec. Machinery Co.

LOUISIANA
New Orleans—Industrial Electric
Shreveport—Shreveport Arm. & Elec.

MAINE
Brewer—Stanley J. Leen Company

MARYLAND
Baltimore—Keystone Elec. Co., Inc.

MASSACHUSETTS
Lawrence—Roland B. Glines Co.
Roslindale—Ranney Electric Motors
Springfield—Elec. Motor Repair Co.

MICHIGAN
Grand Rapids—Grand Rapids Ind. Co.
Detroit—Stecker Electric Company

MINNESOTA
Duluth—Mielke Electric Works, Inc.
Minneapolis—Parsons Electric Co.

MISSISSIPPI
Vicksburg—Ludke Electric Company

MISSOURI
Kansas City—Boese-Hilburn Elec. Co.
St. Louis—French-Gerleman Elec. Co.

NEBRASKA
Omaha—Omaha Electrical Works

NEW HAMPSHIRE
Concord—A S Tracy

NEW JERSEY
Atlantic City—Charles A. Buckley
Paterson—Elec. Service Repair Co.
Trenton—Lockwood Elec. Motor Serv.

NEW MEXICO
Albuquerque—Powell Electric Co.

NEW YORK
Buffalo—Robertson Electric Co., Inc.
Jamestown—A. E. Westburgh
New York—Consolidated Elec. Motor
Rochester—Vanderlinde Elec. Corp.
Utica—Mather Evans & Diehl Co.
Watertown—Watertown Electrics, Inc.

NORTH CAROLINA
Charlotte—Southern Elec. Serv. Co.
Rocky Mount—Hammond Electric Co.

OHIO
Cincinnati—Cincinnati Elec. Equip.
Cincinnati—Electric Service Co.
Cuyahoga Falls—A-C Supply Company
Toledo—Romanoff Electric Company
Youngstown—Winkle Electric Company

OKLAHOMA
Oklahoma City—Southwest Elec. Co.
Tulsa—Smith-Milligan Electric Co.

OREGON
Eugene—Kalen Elec. & Mach. Co.
Klamath Falls—Ray Bigger Elec.
Portland—Milwaukee Machinery Co.

PENNSYLVANIA
Johnstown—Universal Elec. Mfg. Co.
Osceola Mills—Mid-State Elec. Equip.
Philadelphia—Elec. App. Repair Co.
Pittsburgh—Penn. Elec. Coil Corp.
York—Industrial Electric Company

RHODE ISLAND
Woonsocket—Dauray & Bardsley, Inc.

SOUTH DAKOTA
Sioux Falls—Elec. Motor Repair

TENNESSEE
LaFollette—Standard Armature Wks.
Memphis—Ind. Elec. & Supply Co.

TEXAS
Amarillo—G. E. Jones Electric Co.
Dallas—Industrial Elec. Equip. Co.
El Paso—B & M Machinery Company
Ft. Worth—Central Electric Company
Houston—Roy A. Berentz Company

VIRGINIA
Richmond—Wingfield & Hundley
Roanoke—Virginia Armature Company

WASHINGTON
Spokane—Lee F. Austin Company

WEST VIRGINIA
Charleston—Charleston Elec. Supply

WISCONSIN
Green Bay—Beemster Electric Co.
Milwaukee—Dietz Electric Company
Wausau—Electric Motor Service
Wis. Rapids—Staub's Elec. Shop

EDITORIAL STAFF

Editor-in-Chief ..... E. L. SHANER
Editor ..... IRWIN H. SUCH
Managing Editor ..... WALTER J. CAMPBELL
Market Editor ..... WM. M. ROONEY
Engineering Editor ..... JAY DEEULIS
Steel Plant Editor ..... J. D. KNOX
Machine Tool Editor ..... GUY HUBBARD
Consulting Editor ..... ALLEN G. GRAY
Art Editor ..... DON S. CADOT

Associate Editors:

WALTER TOERGE, FRANK R. BRIGGS
DAN REEBEL, VANCE BELL
JOHN S. MORGAN

Assistant Editors:

HENRY J. HOLTZ, DOLORES K. MAILLE
EDWIN L. KARPICK, L. J. SKUDERIN
EDWARD C. BIRKNER, M. T. BORGERHOFF

Resident Editors:

Washington ..... E. C. KREUTZBERG
New York ..... B. K. PRICE, L. E. BROWNE
Pittsburgh ..... J. C. SULLIVAN
Detroit ..... A. H. ALLEN
Chicago ..... E. F. ROSS, H. C. TUTTLE
London, European Editor, VINCENT DELPORT

Editorial Correspondents:

Birmingham ..... R. W. KINCEY
Buffalo ..... L. C. FELDMANN
Cincinnati ..... SAMUEL S. CARR
St. Louis ..... MAC L. HUTCHENS
Youngstown ..... GEORGE R. REISS
Los Angeles ..... NORMAN LYNN
San Francisco ..... ROBERT BOTTORFF
Seattle ..... R. C. HILL
Dallas ..... C. K. CATES
Toronto ..... F. S. TOBIN
Birmingham, Eng. ..... J. A. HORTON
Paris, France ..... LEON JAUDOIN
Liege, Belgium ..... JACQUES FOULON
Dusseldorf, Germany ..... HERBERT GROSS

BUSINESS STAFF

Business Manager ..... J. W. ZUBER

Advertising:

Service Manager ..... C. H. BAILEY
Production Manager ..... A. V. ANDERSON
New York ..... E. W. KREUTZBERG
K. A. ZOLLNER, CALVIN FISHER, JR.
Pittsburgh ..... S. H. JASPER, B. C. SNELL
Chicago ..... L. C. PELOTT, V. G. BRETTMAN
Cleveland ..... D. C. KIEFER
H. G. ROWLAND, W. L. POLAND
Los Angeles ..... F. J. FULLER

Circulation Department:

Manager ..... H. E. METZNER
List Manager ..... G. R. EBERSOLE

Circulation Representatives:

Manager ..... D. G. HEWITT
H. R. DUNNE, E. L. FRANKE
C. A. PRICE, J. O. GREEN

Main Office:

Penton Building, Cleveland 13, Ohio
Main 1-8260

Branch Offices:

New York 17 ..... 60 East 42nd St.
Murray Hill 2-2581
Chicago 11 ..... 520 North Michigan Ave.
Whitehall 4-1234
Pittsburgh 19 ..... 2837 Koppers Bldg.
Atlantic 1-3211
Detroit 2 ..... 6560 Cass Ave.
Trinity 5-3024
Washington 4 ..... 1123 National Press Bldg.
Executive 6849
Los Angeles 4, 130 N. New Hampshire Ave.
Dunkirk 2-1758
London, 2 Caxton St., Westminster, S.W.1

Published by

THE PENTON PUBLISHING COMPANY

Chairman ..... E. L. SHANER
President and Treasurer ..... G. O. HAYS
Vice Pres., Director of Adv. ..... R. C. JAENKE
Vice Pres. and Secretary ..... F. G. STEINEBACH
Assistant Treasurer ..... R. W. COLEMAN

Also publisher of
THE FOUNDRY • MACHINE DESIGN
NEW EQUIPMENT DIGEST

Member, Controlled Circulation Audit, Inc.; and National Publishers' Association.

Published every Monday. Subscription in the United States and possessions, Canada, Mexico, Cuba, Central and South America, one year $10; two years $15; all other countries, one year $18. Single copies (current issues) 35c. Metalworking Yearbook issue $2.00. Copyright 1950 by the Penton Publishing Co.

STEEL

The Magazine of Metalworking and Metalproducing

VOL. 127 NO. 2 JULY 10, 1950

NEWS

★ Letters to the Editors 8
★ As the Editor Views the News 49
★ News Summary 53
The Score on Mobilization 55
Ore in Case of War 56
More Steel for Argentina 57
Switchmen's Strike Pinches Metalworking 59
Solar Buys Ward Warehouses 60
★ Windows of Washington 62
Japanese Steel Industry Greatest in the East 66
People's Republic: Mailed Fist of Korea 67
★ Mirrors of Motordom 69
★ The Business Trend 72
★ Men of Industry 76
★ Obituaries 81

PRODUCTION-ENGINEERING

★ Production and Engineering News at a Glance 83
Isothermal Annealing Improves Forging Machinability 84
Weld Without Flash 86
New Transfer Line Machines 72 Transmission Cases an Hour 88
Warehouse Handling Setup Speeds Order Processing 90
★ Progress in Steelmaking—Synchronized Drives and Controls Raise Fretz-Moon Operating Speeds 96
★ Calendar of Meetings 104
★ New Products and Equipment 107
★ Helpful Literature 111

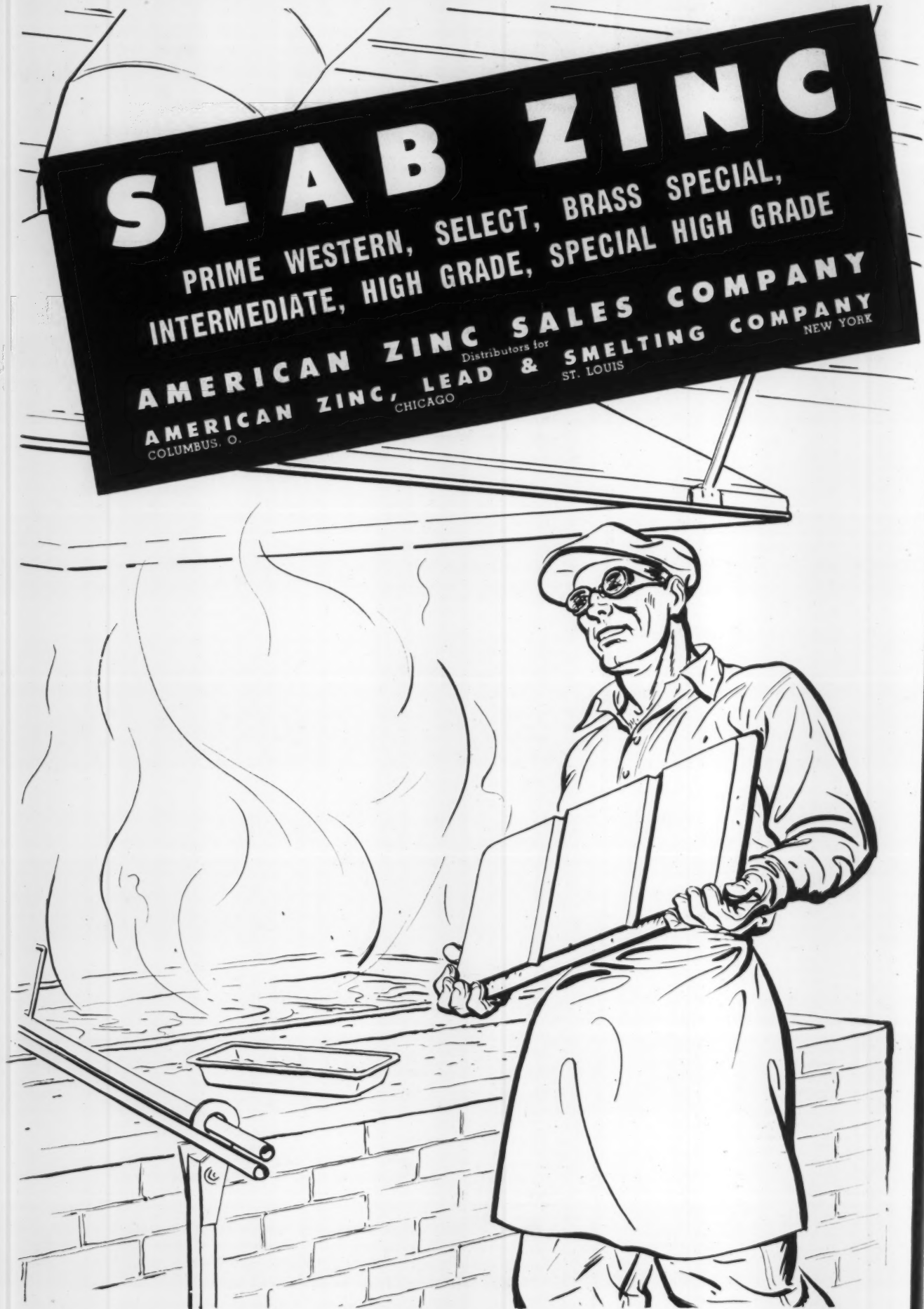
MARKETS

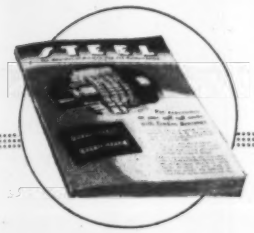
★ Market Summary 113
★ Metal Prices and Composites 114
Drastic Change Made in Copper Pricing 120
★ Metalworking Briefs 138

★ *Denotes regular features*

Advertising Index—Page 144. Editorial Index available semiannually; STEEL also is indexed regularly by Engineering Index Inc., 29 West 39th St., New York 18

Next Week ... **Smart Selection Assures Maximum Machining Benefits from Carbide Insert Cutting Tools ... Copper Paste Tumbles Brazing Costs ... Nodular Iron's Record—Two Years Later ... Gas Purification Program Faces Cokemakers**


SLAB ZINC
PRIME WESTERN, SELECT, BRASS SPECIAL,
INTERMEDIATE, HIGH GRADE, SPECIAL HIGH GRADE
AMERICAN ZINC SALES COMPANY
Distributors for
AMERICAN ZINC, LEAD & SMELTING COMPANY
COLUMBUS, O.
CHICAGO
ST. LOUIS
NEW YORK



July 10, 1950

Anticipate Trouble!

Pursuing our commitment in Korea through to a successful conclusion is going to test our nation severely. We are going to have an uphill fight even if the Kremlin confines its participation to supplying equipment, supplies and ammunition to the North Koreans and to augmenting their manpower by diverting Chinese Reds to the Korean theater. If the Kremlin goes beyond this assistance, we will be in for greater trouble.

In any event, news from the fighting front is bound to be bad for a long time before it is good. The gravity and duration of this bad news will have a profound effect on many policies which govern our normal domestic affairs. A steady flow of really disastrous news from south of the 38 degree parallel might cause us to invoke drastic measures at home that later would prove to have been unnecessary. On the other hand, a few fragmentary early successes might give us overconfidence and cause us to abstain from stern domestic action which later events might prove to have been highly desirable.

The point of this is that government, industry, labor and the public may be confronted with difficult questions of domestic policy within the next few months. Will output for peacetime consumption have to be curtailed to allow for production for war? If so, to what extent will government controls become necessary? Should restraints against inflation be imposed?

These and many other questions may arise. The more we realize that they are a real possibility and the more we try to anticipate all contingencies, the better we will be prepared to make the right moves when the hour of decision arrives.

American industry has improved its status in regard to its attitude toward war tremendously during the last century. Justified charges of war mongering and profiteering were fewer in World War II than in the Spanish-American war or in World War I. During the past few decades leading spokesmen for industry have effectively erased from public mind the one-time belief that industry favored war because it was profitable.

In the coming months industry will have new opportunities to win public good will by statesmanlike response to whatever demands the Korean situation may impose.

* * *

HOW AID BUSINESS? Not long ago President Truman presented a message to Congress on behalf of "small" business. He declared that establishments employing less than 500 persons are not supplying enough jobs for the nation's increasing working force. A bill incorporating some of his ideas is before Congress. It provides for loans to small companies guaranteed by the government.

In testifying in favor of this bill, Secretary of Commerce Sawyer said he knows of a manufacturer employing 60 persons who needs $15,000 to execute a $90,000 government order. He was reported to be mortgaging his home to get the $15,000 because he could not obtain it from banks. The implication is that this company really deserves a government loan.

Does it? One would have to know all circumstances to decide fairly. The experience of small companies is that there are a few able ones which could increase employment if they had financial aid beyond normal banking loans. But to every one of these there are hundreds which need competent management more than

(OVER)

they need money. Mere financial assistance is not a remedy for a business that is basically unsound.

A more practical way of aiding small business is to remove the handicaps imposed by "big" government—exorbitant taxes, anti-business legislation, bureaucratic meddling involving costly paper work, and a situation in which no authority in Washington can tell a businessman what he can or cannot do legally. —p. 62

* * *

U. S. OUT OF BALANCE: Our entry into the Korean situation comes at a time when the nation's industrial activity is somewhat out of balance. The steel and automobile industries are working at or above normal capacity. The construction industry is at a new peak of activity. Some other industries are operating at high levels.

But the builders of freight cars, steam locomotives, ships and some other items are operating at low levels of activity and would welcome orders. Also the railroads and coal mines are not in a comfortable position as to business volume.

If we are in for any appreciable increase in national output, it would be desirable to correct this condition of unbalance. Particularly will it be important to get our railroads and coal mines in condition to meet whatever emergency arises. Fuel and transportation are basic to industry's successful performance in time of stress. —pp. 55, 65, 72, 113

* * *

DOUBLE JOB IN KOREA: One thing to keep in mind about Korea is that most of the mineral resources, electric power capacity and heavy industry of the country is north of the 38 degree parallel and that South Korea is predominantly agricultural, with some light manufacturing facilities.

With the Soviet iron curtain at the 38 degree parallel, the economy of Korea has not had a chance to function normally since the Japs were in control. Even then, the mineral and industrial resources of the peninsula were operated largely as a feeder for Japan's home island economy and not for the benefit of Korea itself except in minor degree.

Therefore if Korea is to be made a normal nation, it will be necessary not only to reunite the facilities of the North and South but also to develop resources and industrial potential to cater to Korea's needs. This is a formidable undertaking which will require time, money and a high degree of understanding of the ways of the Orient. —p. 67

* * *

BETTER THAN EXPECTED: Since the end of World War II much has been written about the diminishing reserves of Lake Superior iron ores and the probability that in the future the United States will have to depend more upon ores from Labrador, South America and other distant points. In view of the present threat of war, it is reassuring to know that reserves of high grade ore in the Steep Rock range in Ontario are much greater than previously estimated.

Recent drilling indicates that there are several hundred million tons of ore at Steep Rock, permitting an output of about 10 million tons annually for many decades. Highly significant is the fact the mines are on a main line railroad only 140 miles from a dock on Lake Superior. This means that this large body of ore is available to United States and Canadian steelmakers through an established economical transportation system. More than a million tons of Steep Rock ore were shipped last year. —p. 56

* * *

DRILLING SMALL HOLES: Every now and then somebody comes up with an account of an amazing accomplishment in working in metal to extremely small dimensions. One of the latest is a report from the Naval Ordnance Laboratory at White Oak, Md., that one of its technicians has drilled a hole about 60/100,000ths of an inch in diameter in a piece of platinum. This is about half the diameter of a human hair.

According to the Department of Defense, the drill was made on a jeweler's lathe. The drilled piece of platinum is a component for the hydraulic system of one of the Navy's new weapons. If hydraulic equipment for peace or for war is tending toward an increasing necessity for such minute apertures, then finding a practical way to drill such holes will present a new and interesting challenge to tool engineers and machine tool builders. —p. 83

E. C. Shaner

EDITOR-IN-CHIEF

News Summary

WHAT'S THE SCORE? Since the United States has taken the Red bear by the paw in Korea, industrial executives have furrowed their brows wondering about the possibilities of industrial mobilization (p. 55). Actually, there were no indications late last week that the President would soon ask for any more sweeping controls than he already has. He has power, under the "Utilization of Industry" section of the Selective Service Act, to issue mandatory priorities on orders for military requirements and to seize the plant of any manufacturer who refuses or fails to comply. A sharply worded paragraph bears down on the steel industry. The "Industry" section does not permit the President to apply rationing or allocations.

ACE IN THE HOLE— The Korean conflict and the switchmen's strike have heightened the interest and tension about U. S. iron ore. (p. 56). Part of the answer to the question of where will the ore come from to take the place of the diminishing Mesabi reserves may be supplied by the Steep Rock mines near Atikokan, Ont. Steep Rock Iron Mines Ltd. owns reserves 140 miles from Lake Superior on the main line of the Canadian National Railway. Continental ore is thus available to the American steel industry via lake shipping routes.

EYES TOWARD THE EAST—Even though it was ravaged by the war, Japan is still the most industrialized area in East Asia (p. 66). Its basic industry is still steel. Yawata, first Japanese target of B-29s in World War II, is still the biggest steelmaking center. It is on the west side of the empire—near Red-dominated China and war-torn Korea.

STEEL MILLS AND RICE PADDIES—When arrangements were made for the surrender of Japanese troops in the land of the 38th parallel, those troops north of the line were ordered to surrender to the Russians, those south of the parallel to the Americans. North of the parallel are Korea's steel industry, its power plants, its iron and coal mines. South of the parallel are the rice paddies and two-thirds of the population. But northern and southern Korea together don't constitute a self-sustaining economic unit: The Japanese harnessed Korea's wealth of natural resources to its own war-making potential (p. 67).

HEALTHY YOUNGSTER—Down in Argentina where the whole economy is geared to cattle raising a steel mill seems a little out of place. But Acindar, a thriving seven-year-old, evidently isn't out of place. It has expanded 778 per cent in the last five years (p. 57).

HOME GROWN VARIETY— While problems of an international nature were getting a lot of attention in Washington, some senators were mindful of some home grown problems: Senator Capehart (Rep., Ind.) said he would introduce at least three amendments to the proposed "Small Business Act of 1950." One would exempt the first $50,000 of corporate profits from taxation. Another would permit depreciation to be charged off in five years. The third would make it mandatory for the government to place 50 per cent of its procurement with small business. Members of the Senate Banking & Currency Committee want to study the small business situation more intensively before they agree on a bill (p. 62).

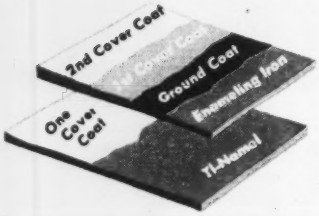
HERE AND THERE IN INDUSTRY—Four basic industry problems will be tackled by the 40,000 metalworking executives, engineers and metallurgists who are expected to attend the 32nd National Metal Congress & Exposition in Chicago, Oct. 23-27 (p. 58). The perennial problems: Technology, management, production and distribution . . . Arthur G. McKee & Co. revealed details of the integrated iron and steel plant that it will build in Colombia, South America (p. 58) . . . Solar Steel Corp. bought the warehouse business of Edgar T. Ward's Sons Division from Columbia Steel & Shafting Co. (p. 60) . . . Armco Steel Corp. announced development of a new stainless steel for television viewing tubes that should, says John A. Ingwersen, vice president in charge of distribution, improve the competitive position of metal-glass tubes (p. 61).

Production-Engineering News—p. 83 *Market Summary*—p. 113

IMPORTANT *to Vitreous Enamelers*

Inland Ti-Namel

covers WHITE with only one coat

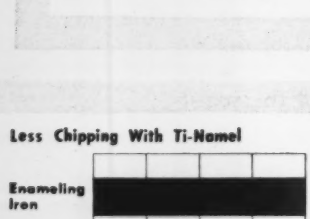


Finish coat is applied directly to TI-NAMEL. Only one cover coat needed.

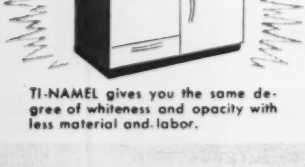
When you can use TI-NAMEL with a thinner coat without sacrificing whiteness—that's profit-making news to you! This means less chipping in manufacture, in transit, and in use. It slashes shipping costs by permitting the use of lighter crates and reduces transit damage claims.

But that's not all. Users report considerable savings in the plant—savings in processing time, as well as savings in labor, frit and weight of steel. TI-NAMEL will not craze or fishscale. It will not blister or reboil.

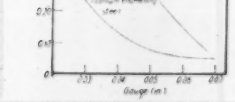
TI-NAMEL has all of the production advantages of deep drawing sheets, plus remarkably high sag resistance. To find out if TI-NAMEL can help you turn out better porcelain enamel products at lower cost—write Inland Steel.



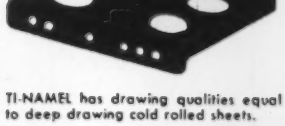
Thinner coats mean less chipping and, therefore, less rejects of finished parts. One fabricator reports 50% less chipping.



TI-NAMEL gives you the same degree of whiteness and opacity with less material and labor.



Higher Sag Resistance. TI-NAMEL won't warp even under high temperatures. Lighter gage sheets can be used safely, allowing worthwhile production economies.



TI-NAMEL has drawing qualities equal to deep drawing cold rolled sheets.

INLAND

INLAND TI-NAMEL® *Titanium-Bearing Killed Steel Enameling Sheets*

INLAND STEEL COMPANY, Dept. S7100, 38 So. Dearborn St., Chicago 3, Illinois

Sales Offices:

Chicago, Davenport, Detroit, Indianapolis, Kansas City, Milwaukee, New York, St. Louis, St. Paul

OTHER PRODUCTS: BARS • SHEETS • STRIP • STRUCTURALS • PLATES • TIN PLATE • FLOOR PLATE • PILING • REINFORCING BARS • RAILS • TRACK ACCESSORIES

STEEL
A PENTON PUBLICATION

The Score on Mobilization

Only controls now available are those in Selective Service Act, and there have been no indications they will be applied or that more sweeping ones will be sought

IS INDUSTRIAL mobilization likely? How would it affect us?

These have been two foremost questions from industrial executives since United States military action began in Korea.

The answer is: Up to now there have been no indications that controls will be applied, nor that controls more sweeping than those now authorized will be requested at an early date.

The only controls now available to the government are those in the Selective Service Act—in the "Utilization of Industry" section. This section authorizes the President to issue mandatory priorities on orders for military requirements, and to seize the plant of any manufacturer who refuses or fails to comply; a sharply worded paragraph bears down especially on the steel industry. Violators are subject to jail penalties and fines up to $50,000. It should be noted that the "Utilization of Industry" section gives the President only the right to use mandatory priorities in obtaining steel and other materials required for military needs. It gives him no right to apply rationing or allocations.

Ready If Needed — These other powers do not exist at the present time, but they are contained in the Emergency Powers Act which has been drafted by the National Security Resources Board and which could be sent to Congress—with the likelihood that it immediately would be approved—whenever the President thinks the emergency warrants. This measure comprises 20 titles which would give the President all the powers he would need to prosecute a war of any magnitude.

Back in 1948, when the Selective Service Act first was passed, the military decided not to make use of the draft-industry powers conferred in the act, since to do so might prove highly disturbing to the domestic economy and lead to embarrassment for the military. This still is the military attitude—so it is unlikely any priorities or other powers will be invoked over industry unless there is a real emergency in which the President would call for enactment of the Emergency Powers Act.

If War Should Come—If a real world war should break out, a flood of controls could be expected almost overnight following passage of the Emergency Powers Act. Steel consumers would soon be in trouble, for a big war would precipitate an additional big steel demand right on top of the present tight supply situation. The changed situation would be reflected very quickly, for the Department of Defense is in a position to submit within a few days to a few weeks the bills of materials for its initial war procurement program.

Munitions Board estimates that procurement for the first six months of a full-scale war would come to $41 billion, of which it is prepared to place today if necessary some $17 billion. This is the result of preparatory work that has been going on for many months, during which the armed services have been working on three lists of military requirements. List No. 1 contains some 2500 items of highest military priority. List No. 2 contains some 2000 items of slightly lower priority but also vital for defense and striking power. List No. 3 involves an indefinite number of items classed as "important but not vital."

NEA

HUBERT E. HOWARD
. . . "munitions in less time"

Paper Plans — Under voluntary agreements with manufacturers, the armed services already have arranged for more than 5000 wartime production schedules. Prior to the Korea outbreak, Sept. 1 had been set as the target date for completing such agreements on all List No. 1 items, and Dec. 31 for all List No. 2 requirements. But a speedup could advance these dates materially.

How long would it take to convert industry for war production? Or, putting the question another way, how long would it take before wartime steel requirements would start to take away steel on a large scale from civilian industry? The answer: Many contractors could begin war production immediately because they have the necessary equipment, while the conversion process at plants where conversion will be required would be much faster than in World War II. As a result of exploratory runs on items of special importance manufacturing methods have been worked out, bottlenecks have been anticipated and lead crews of workmen trained. "As a result of these studies," said Hubert E. Howard, chairman, Munitions Board, "we believe we can save nine months on a certain model tank and four months on a B-50 bomber."

Axe Would Fall Quickly—Hence, civilian industry could expect a diminution in its steel supply almost from the first day of a world war, and adoption of hundreds of use-limitation orders in the course of one, two or three months.

There is still room in the military procurement program for many industries. Manufacturers interested in getting military standby orders, which would become effective on a future M-Day, should read the Munitions Board's "Production Allocation Manual," available from the Superintendent of Documents, Government Printing Office, Washington 25.

'War and Rumor of War'

THE KOREAN CONFLICT gave a sudden fillip to an already boom-proportioned economy last week. Rumors that made the rounds in the nation's industrial cities gave a terrific boost to consumers' goods that a big war would brand "nonessential." "Creeping" inflation was getting a jet-assisted take-off.

Rumor mongers in Chicago were

using the war headlines to sell a jittery public the idea that wartime shortages were just around the corner: "Remember 1942—Order Your New Car Before Production Stops!" A gullible public was on a buying splurge, grabbing up nylons and canned goods, cigarets and tires. The metalworking community was not altogether immune. Buyers and sellers were both trying to take advantage of the possible shortage threat. Forgetting that the increase in military contract-letting in June was a result of the government's fiscal year ending and appropriations turning into orders, many war-scared businessmen were hoisting themselves by their own petards.

A scrap dealer understood an implement maker was tooling up for tanks. The fact: The company is undertaking some tank design work.

A small manufacturer promised to raise prices "so an OPA roll-back won't hurt so much." The possibility: His customers might not hold still for it.

International Harvester, Chicago, noted a serious shortage of flat cars that tied up shipment of farm machinery from three of its midwestern plants. The explanation: Not Army commandeering at all. Just the switchmen's strike.

A truck dealer who received a shipment missed one truck. He understood the explanation he was given by the factory over the phone to include the word government. His conclusion: The plant had been taken over for military production. The truth: The plant has a military order of negligible size that was mentioned inconspicuously in the newspapers days before.

Willys Gets Big Jeep Order

An order that was under development between Willys-Overland Motors Inc. and the U. S. Ordnance Department since last December was finally placed with Willys last week. It was for 8350 Jeeps, aggregate cost of which will be $22,291,330.40.

The order was largest placed with Willys-Overland in the last five years and one of the largest placed with any single automotive company since World War II. Taken with other orders still unfilled and covering trucks and other vehicles, engines and varied parts, the order places Willys' total of unfilled orders for the nation's government agencies, military and civil, at about $43 million. The sum is about one quarter of the Toledo, O., company's total sales for its best year since the war.

Though no shipping order was given, Willys assumes the new

STEEL IRON ORE MINES
. . . ace in the hole

vehicles will be used by the armed forces. Colors indicate use by the Army, Air Force and Marines.

Special Attention to Bearings

In a move to assure meeting future aircraft industry requirements, SKF Industries Inc., Philadelphia, announced it was placing production of precision antifriction bearings under separate manufacturing supervision.

A major supplier of bombsight and other aircraft bearings during the war, the company decided to make the step to coincide with an expanding aircraft program.

"Substantial quantities of precision bearings, primarily for jet engines, must be made to extraordinarily exact specifications," John Lawrence, vice president, says. "The manufacturing techniques necessary for such precision can be better utilized by placing these bearings in special production channels."

As many as 75 to 100 antifriction bearings go into a jet engine and its accessories as compared with about ten for the average wartime piston-type engine.

Light Planes Order Awarded

The Department of the Army announced the award of a contract for 400 light aircraft, parts and equipment at a cost of about $5 million to Cessna Aircraft Co., Wichita, Kans.

It is the first large purchase of planes for Army ground troop use in artillery observation and reconnaissance missions since World War II. Deliveries are expected to begin in December, 1950, and to continue next year. Actual procurement of the planes will be by the Air Materiel Command.

Ore in Case of War

Korean situation heightens interest in Steep Rock mines as source of iron ore for U. S.

HAS THE U. S. enough iron ore reserves immediately available in case of war? The diminishing Mesabi reserves for a while can supply most of the ore needed by American steel mills, but help will be necessary in case extraordinary demands are protracted.

Where will the help come from? The Steep Rock range near Atikokan, Ontario, Canada, may be part of the answer.

Strategic Position — Steep Rock Iron Mines Ltd. owns reserves 140 miles from Lake Superior—on the main line of the Canadian National Railway, so that Steep Rock ores are available to the American steel industry via lake shipping routes.

Production from one mine, the Errington, is currently well ahead of last year's schedule when 1,134,261 tons were shipped. Output of the Errington mine this year could easily reach 1,300,000 tons.

Open-Pit Mining — Work is progressing to assemble a large dredge to remove the overburden covering the Hogarth mine. Production from this mine will commence in 1952, and will reach a total of 3 to 4 million tons a year over and above output of the Errington mine. "Steep Rock production goal is 10 million tons a year," says Cyrus Eaton, chairman of the board for the mining company.

Inland Steel conducted a drilling program last winter on part of the Steep Rock property known as the "C" area. Satisfactory results were obtained and Inland is currently engaged in an additional drilling program and geological survey. It is expected that production from the Inland area will reach 3 million tons a year.

More To Come?—The Steep Rock company's own drilling during the winter, between the Errington and the Hogarth mines, has confirmed the opinion of many geologists that the two mines actually constitute one long, continuous ore body. In addition to the three mines now under active development, there are at least seven other ore bodies on the Steep Rock property. While the areas have not been all drilled, the ore bodies are of deep-seated origin extending from close to the surface to several thousand feet in depth. The reserves on the property are not yet fully proved, but are undoubtedly in the hundreds of millions of tons.

which at a production of 10 million tons a year would supply ore for the steel industry for many decades. Iron content of the Steep Rock ore is substantially higher than the average of all other ores shipped from the Great Lakes area, the company points out.

In addition the ores are of bessemer quality, very low in phosphorus and silica.

Rubber Supply Too Low, Too High

The nation's supply of raw rubber is too low for national security and too high for economic stability.

So says P. W. Litchfield, chairman of the board of Goodyear Tire & Rubber Co., Akron, O.

Mr. Litchfield solemnly warns that statistically the rubber picture in the country is worse than was the case just prior to Pearl Harbor. As an effective remedy, he suggests that the government proceed at once to step up production of synthetic rubber to 50,000 long tons per month and that it start the creation of a stockpile of 200,000 tons for possible national emergencies.

Mr. Litchfield made his statements in a review of the rubber situation that did not anticipate the Korean conflict.

In his rubber review he warned against further dispersal of government-owned synthetic rubber plants and responsibilities for their operation.

Said he: "The American synthetic rubber industry is above all a weapon of national defense. Our economy and our national security primarily depend upon mobility, and mobility, in turn, depends upon rubber."

Rolling Mill Firm Faces Suit

Civil suit charging United Engineering & Foundry Co., Pittsburgh, with being a part of an "international conspiracy" to restrain trade has been filed by the U. S. Department of Justice.

Brought under the Sherman Anti-trust Act, the suit asserts that the company and 13 other firms split up the world among themselves for distribution of rolling mill machinery and equipment.

Commenting on the suit, the company said it did nothing beyond the ordinary and accepted acts of legitimate business.

If the Pittsburgh company is enjoined from continuance of its contracts with the foreign firms "one more small nail will have been driven into the coffin of our liberties," says F. C. Biggert Jr., chairman of United Engineering & Foundry.

More Steel for Argentina

Acindar, a company organized there only seven years ago, expanded production 778 per cent in five years and is planning still further expansion

DOWN in the cattle country of Argentina a steel mill is growing by leaps and bounds.

A similar expansion in the United States would not be considered big, but in Argentina where the country's economic structure is built around cattle raising the expansion is tremendous.

Making the expansion is Industria Argentina de Aceros S. A., commonly known as Acindar. From an ingot output of 11,389 metric tons in 1945 the company has expanded its facilities so that an estimated 100,000 tons of steel will be produced this year—a 778 per cent increase.

Only a Youngster — Acindar was organized seven years ago and has its original plant in Rosario with a second plant nearing completion in Villa Constitucion, a small town 40 miles from Rosario and located on the Parana river. The Rosario plant has two 35-metric-ton open-hearth furnaces and construction of a third is planned. It also has two No. 7 Whiting cupolas used to supply 40 to 50 per cent hot metal charge for the open hearths.

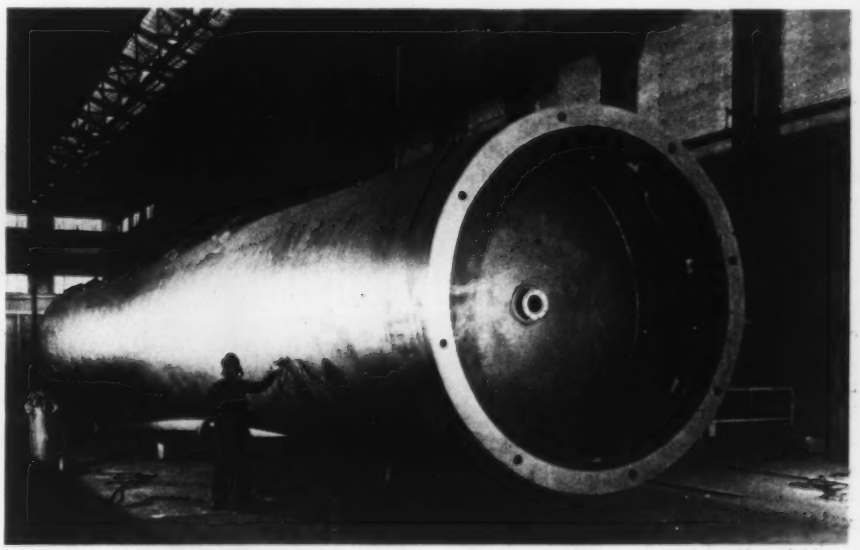
Handling equipment is also being modernized in Rosario to eliminate much of the manual labor used in the past. New installations are similar to those found in many modern U. S. plants. Railroad and roadway improvement will speed material handling within the plant and shipping of finished steel.

A new loading yard measuring 30 by 200 meters is already in operation.

Power Booster — Electric power consumption at the Rosario plant exceeds the supply available from the Sociedad de Electricidad de Rosario, so Acindar built a supplementary power plant powered by a 1600 horsepower diesel engine and capable of supplying 1100 kilowatts of power. Next on the docket are two projects: An iron foundry for making ingot molds and a converter steel foundry to make maintenance castings with excess capacity to pour ingots to supplement the open hearths.

Three mills are going up at the new Villa Constitucion works. A wire mill and a Morgan combination mill to produce rounds, squares and small sections are going into production this year. A butt-weld continuous pipe mill for making pipe in sizes ranging from ⅜ to 4 inches will be in operation in June, 1951.

Future plans include a blast furnace, four 150-ton open hearths, new blooming and billet mills and a fleet



A WELDED PRODUCT: This giant tube is a 33-ton absorber tower, 97 feet long and 11 feet in diameter. It was made at the Bethlehem, Pa., plant of Bethlehem Steel Co. The workman with the spray gun is painting the tower which was constructed for the company's Sparrows Point, Md., plant where a large expansion program is underway. The tower will increase facilities for distribution of coke oven gas. It was made of 3/8-inch steel plates butt-welded together

of boats to carry iron ore from Chile around Cape Horn to Argentina. The ore will be unloaded directly from the incoming boats onto the company's docks on the Parana river.

Mill Will Cost $45 Million

Details of the contract covering general engineering, procurement services and supervision of construction of an integrated iron and steel plant in Colombia are revealed by Arthur G. McKee & Co., Cleveland. The award was originally reported in STEEL, June 26 issue, p. 45.

Cost of the plant to be built for Empresa Siderugica Nacional de Paz de Rio at Belencito in Boyaca state is estimated at $45 million. It will have a blast furnace, coke ovens, basic bessemer steelmaking plant and rolling mills sufficient to produce initially about 100,000 metric tons of finished iron and steel products. All raw materials are located in close proximity to the plant site. Design and construction will require about three years.

Four Topics for Metal Show

Four basic industry problems—technological, management, production and distribution—will be tackled by the 40,000 metalworking executives, engineers and metallurgists expected to attend the 32nd National Metal Congress and Exposition in Chicago, Oct. 23-27.

Technological—Two hundred twenty papers will be presented by the four sponsoring societies, the American Society for Metals, the American Welding Society, the Institute of Metals Branch of AIME and the Society for Non-Destructive Testing. The program actually will get under way on Saturday and Sunday, Oct. 21-22, when ASM holds a special seminar on atomic energy.

Management—A forum comprising a group of top executives will discuss the business outlook for the metalworking industry.

Production — Over 260 domestic and foreign companies already have signed up to exhibit their products, equipment, processes and services at Chicago's International Amphitheatre. The number is expected to reach 350 by show time.

Distribution — Marketing problems will receive special attention in a sales clinic and forum new to the metal show.

Shows of Value? ASM is doing something about checking values of shows. An analysis of the 35,588 visitors at the Cleveland show last fall shows that 83.6 per cent found the exhibits helpful; 43.7 per cent said the technical sessions were of real value and help; 68.1 per cent got ideas that might lead to buying within a year and 38.6 per cent made buying decisions.

Instruments Exhibit Space Sold

Show space at the 1950 National Instruments Exhibit, the fifth annual instruments exhibit sponsored by the Instrument Society of America, is completely sold out. The show is to be held in Memorial Auditorium, Buffalo, Sept. 18-22. Attendance at the show is expected to be about 8000.

Materials Handling Studied

Representatives from eight colleges in Ohio, Illinois, Michigan, New York, Pennsylvania, and Alabama attended the first education conference sponsored by the Material Handling Institute, Inc., in Pittsburgh, to establish a pattern for teaching materials handling as a regular one-semester course.

Present at the meeting were representatives of the Educational Committee of the American Materials Handling Society, Chicago.

Second Celebrated on Fourth

Lone Star Steel Co. officials, stockholders, employees and guests commemorated on July 4 the second anniversary of the purchase of the government-built facilities that Lone Star expanded into a multimillion dollar industry.

Rep. Wright Patman (Dem., Tex.) delivered the principal address; E. B. Germany, president of Lone Star, described the improvements made during the last two years, amounting to over $5 million, which include the new $1.5 million cast iron pressure pipe plant and the Reilly Tar & Chemical Co.'s plant now under construction.

Lukens Hails 140 Years

Lukens Steel Co. on July 2 marked the 140th anniversary of its founding on the banks of Brandywine creek at Coatesville, Pa. Started as Brandywine Iron Works & Nail Factory, the first mill was located near Lukens' present chemical laboratory where a bronze tablet commemorates the rolling of the first boiler plate in America.

Issac Pennock, a young Quaker farmer and Jesse Kersey, a Quaker preacher and business promotor, acquired a saw mill and converted it into an iron works to start the business on July 2, 1810, that was some day to employ upwards of 4300 persons and cover a site of 600 acres.

The name of the company was later changed to commemorate Rebecca Lukens, eldest daughter of Pennock and widow of Dr. Charles Lukens.

THERE GOES THE TOW BOAT: Alas, old sternwheeler towboats will soon be no more. Their places are being taken by modern diesel towboats. Dravo Corp., Neville Island, Pa., is building five in about the same class as this one for the river fleets of Jones & Laughlin, Pittsburgh Consolidation Coal and Crucible Steel. The five will be built on a sectional prefabrication assembly-line basis. Each will be equipped with two diesel engines made by Superior Engine Division of National Supply Co. Each engine is rated at 533 horsepower. All main engine controls will be at the pilot's fingertips through Westinghouse Air Brake pilot house remote control systems

Strike Pinches Industry

Switchmen's walkout ties-up Great Northern ore docks and nonferrous smelters

METALWORKING PLANTS may feel a pinch next winter from the switchmen's strike on five of the nation's railroads.

The strike is hampering the movement of iron ore, and this may result in a crippling of iron and steel production if lower lakes stockpiles of ore cannot be built up sufficiently to carry through the winter months.

Seriousness of the strike which cripples Great Northern Railroad's ore movement to its Superior, Wis., docks is accented by the international situation, a high steelmaking rate and a late start in the Great Lakes shipping season. Great Northern handles about a third of the ore shipped from the Lake Superior area. Steelmakers say that getting enough ore down the lakes this year would have been nip-and-tuck even without the strike.

Cupboard Getting Bare—At the strike's start ore boats were able to load from dockside stocks but in the week ended July 3 the pinch began. That week's shipments from Great Northern skidded sharply to 189,629 tons from 980,572 a week earlier. Other railroads increased their loadings to take up some of the slack but total shipments slumped 234,000 tons to 2,614,186 tons for the week.

Youngstown Sheet & Tube Co. and Republic Steel Corp. are concerned that a serious ore shortage will cripple their Youngstown operations next winter.

The affected shipments represent about 40 per cent of the ore received by Sheet & Tube and 30 per cent of Republic's northern ores.

Innocent Bystanders—Other strike casualties are nonferrous mines. Movement of lead concentrates into and out of American Smelting & Refining Co.'s Leadville, Colo., smelter were stopped last week. This plant had been turning out the equivalent of 2000 tons of lead per month. Previously operations were halted at the company's Garfield, Utah, copper smelter which treats material coming from Kennecott Copper Corp.'s Utah mine and turns out about 24,000 tons of refined copper a month. Striking railroaders also stopped copper movement into and out of Anaconda Copper Mining Co.'s large Great Falls, Mont., copper refinery and zinc movement at its electrolytic zinc refinery located in the same city.

In addition to the Great Northern, other railroads affected by the strike are Chicago Great Western, Denver & Rio Grande Western, Western Pacific and Rock Island.

A-C Signs 5-Year Labor Pact

The signing of a five-year labor contract between the Allis-Chalmers Mfg. Co. and Local 248, UAW-CIO, covering about 10,000 production employees at the West Allis, Wis., plant, was announced jointly by Allis-Chalmers and the union.

It covers wages, pensions, health and accident and group life insurance, union security and other contract provisions. It will expire June 30, 1955.

Contract provisions include:

A unique "mutual securities" clause providing for a modified union shop similar in many respects to that at General Motors.

A 3 cents per hour general wage increase effective immediately and another 3 cents at the beginning of the second year of the contract. At the end of the second year, the parties may continue the 3 cents per hour for each of the three remaining years, or either party may ask that wage negotiations be reopened.

A cost-of-living formula providing an adjustment of 1 cent per hour for each 1.25 percentage points change in the Bureau of Labor Statistics Consumers' Price Index.

A previously announced pension plan offering $100 per month maximum pensions, including federal benefits, to employees retiring at 65 with 25 years of service.

Take It Away

"You can have it, I don't want it" might be Larry Kreger's theme song. The Chicago manufacturer (his company, L. F. Kreger Mfg. Co., makes stampings and dies for automotive and aircraft companies) offers to sell his plant to President Truman "at a big bargain."

He writes: "I'd like to see you operate it according to brain trust regulations and pay brain trust taxes and then remain liquid and solvent as you compel me to be."

This is the latest blast in Kreger's aggressive attack on the administration. He originated "needle" stamps, the gummed perforated tags bearing such legends as: "You even pay a tax on the air in your tires" or "Steel costs a little more; taxes cost a lot more." this campaign gains momentum by the day in terms of companies, associations and individuals using the stamps on their products and correspondence.

Five-Months Strike Ends

A five-months strike at Globe Steel Tubes Co., Milwaukee, is over.

One tube mill is scheduled to go into operation July 10, but full production probably will not be achieved until the end of this month. First men were called back last week to rehabilitate machinery and facilities disabled by the long walkout.

Orders are coming in at a rate sufficient to make company officials fear they will have a problem of obtaining a sufficient supply of tube rounds.

Settlement of the strike was reached first with an AFL union representing the bulk of the company's unionized men. The new two-year contract with it calls for a 9-cent hourly wage increase, to be followed next June with a 4-cent hourly raise. International Association of Machinists, independent, representing about 20 of the company's 700 employees accepted a one-year contract granting an 11-cent hourly wage increase and the equivalent of 4 cents an hour to eliminate inequities.

Both contracts provide for six paid holidays. No pension provision is made.

Warner Gear Workers Strike

The strike of 4000 UAW—CIO workers at the Muncie, Ind., plant of Warner Gear Division of Borg-Warner Corp. shut off shipments of transmissions and other parts to Ford, Nash and Studebaker.

No progress was reported in settling the dispute over wages, pensions and other welfare issues. Negotiations were broken off when the old contract expired July 1.

Chapple: NIAA President

Bennett S. Chapple Jr., assistant vice president of sales, United States Steel Corp., Pittsburgh, was elected new president of National Industrial Advertisers Association at its 28th annual convention held in Los Angeles. Elected vice presidents were Edward E. Beauchamp, advertising engineer, Lane-Wells Co., Los Angeles, and James Totton, International Nickel Co., Toronto. Charles W. Shugert, assistant to the advertising manager, Shell Oil Co. of New York, was named secretary-treasurer. Vice presidents re-elected were Robert A. Joyce, Automatic Sprinkler Co. of America, J. F. Apsey Jr., Black & Decker Mfg. Co., and H. James Christy, Eastman Kodak Co.

Solar Buys Warehouses

Plants in Cleveland, Cincinnati and Detroit will be operated as Edgar T. Ward divisions

Solar Steel Corp., Cleveland, purchased the business of Edgar T. Ward's Sons Co. Division from Columbia Steel & Shafting Co.

By the purchase Solar acquires Ward plants in Cincinnati, Cleveland and Detroit. They will be operated as Edgar T. Ward divisions and will stock a complete line of general steel products. Facilities and personnel will be expanded, said Sol H. Friedman, president of Solar.

After he developed many independent local businesses, Mr. Friedman merged them into Reliance Steel Corp., which later was sold to Detroit Steel Corp. Then he founded Solar which now has plants in Chicago, Detroit and Union, N. J.

Fort Pitt Malleable Sold

Steel Trading Corp., Pittsburgh, bought the Fort Pitt Malleable Iron Co. plant at McKees Rocks, Pa. H. L. Berkman, president of Steel Trading, made the announcement.

Fort Pitt discontinued operations Mar. 31, 1950. Shortly before that it employed about 500 men. Edward W. Wright, executive vice president of Fort Pitt, said the principal products of the company were castings for railway equipment, farm machinery, the automotive industry, highway bridges and guard rails. The company, organized in 1901, was operated for nearly half a century by Frank J. Lanahan.

Although no definite plans have been formulated by the purchaser, Mr. Berkman says surveys and engineering studies are being made of the acquired facilities.

Great Lakes Carbon Takes Over

Purchase of the St. Louis coke plant of Laclede Gas Light Co., St. Louis, was negotiated by Great Lakes Carbon Co. Operations under the new owner began last week. With annual capacity of 250,000 tons, the plant specializes in high-grade metallurgical coke for foundries, blast furnaces, smelters and other industrial users (STEEL, July 3, p. 72).

Transamerica Merges 3 Firms

Three metal fabricating companies owned by Transamerica Corp. were merged: General Metals Corp., Adel Precision Products Corp. and Enterprise Engine & Foundry Co.

Adel and Enterprise will be merged into the General Metals organization. Both will become operating divisions of General Metals. Enterprise produces diesel engines and oil burners in its South San Francisco plant, and Adel makes hydraulic equipment at Los Angeles.

William E. Butts, president of Enterprise will become president of the consolidated company. William W. De Ritter, now president of General Metals, will become chairman of the board.

Shwayder Will Move 'Next Door'

Another end product manufacturer is moving in next door to the steel industry.

Shwayder Brothers Inc., Denver, manufacturers of Samsonite luggage and folding tables and chairs will erect a new plant in a Pittsburgh suburb.

McCloskey Co., Pittsburgh, will build the plant which will be used to manufacture steel products. The building will be about 200 x 250 feet; investment will come to approximately $500,000.

Mid-West Develops Abrasive

Quantity production of a new abrasive grain for use in making grinding wheels and sandpapers will begin at Owosso, Mich., about Sept. 1 when Mid-West Abrasive Co. completes its new abrasive grain plant.

James T. Jackson, Mid-West president and general manager, says the new grain, developed in the company's laboratories, has been proved superior to other abrasive grains for metalworking operations. The new plant, 72 x 342 feet, contains more than 100,000 square feet of floor space. It was acquired by Mid-West last year.

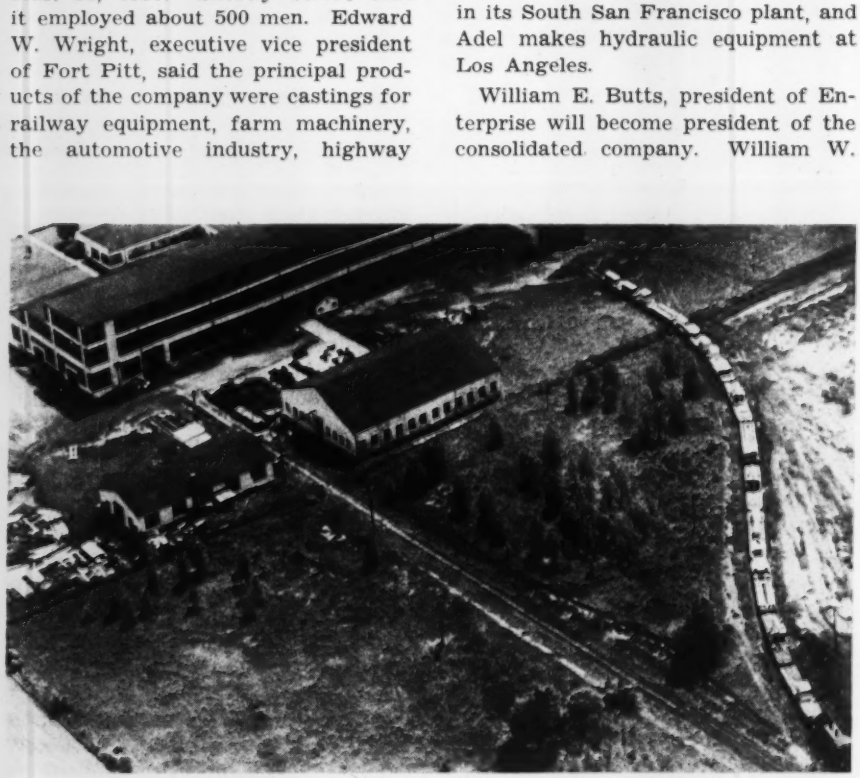
Metallic Sodium Operations Start

National Distillers Chemical Corp. began commercial operations at its new plant in Ashtabula, O. The corporation made its first commercial shipment of metallic sodium June 20 and is delivering chlorine to the adjacent plant of Hooker Detrex Inc.

Pulverizing on West Coast

A new method of pulverizing ore, rock and similar materials soon will be started commercially in San Francisco. Turbo Mill & Pulverizer Co., developer of the patented process, is ready to open its new plant which the firm expects will aid the western mining industry.

Basic feature of the process is pulverizing of materials while holding them in suspension. Rock or ore up to six inches in thickness are fed into the mill by hopper and pulverized by mechanical hammers while keeping the mass in suspension. No grinding stages are involved. No foundation is necessary for the machine because vibration is kept to a minimum. Because the machine can be broken down easily into subassemblies, it



LONG TRAIL AWINDING: It took 11 railroad flatcars to ship Hydraulic Press Mfg. Co.'s 18,000-ton hydraulic pipe-forming press from the company's No. 2 plant at Mt. Gilead, O., to Consolidated Western Steel Corp.'s Orange, Tex., plant. The press will be used to fabricate 36-inch diameter steel pipe in 40½-foot lengths from ½-inch steel plate. When the press (it weighs over a million pounds) starts producing, its products will go winding around the country transmitting oil and gas

can be transported readily to mining sites.

Western steel makers may benefit from the development: Chromium ore now mined in California or shipped to the West Coast from South America now must be shipped to eastern mills for pulverizing before being sent back to the West Coast for use.

A Radio City—Now a TV City?

America's first network "television city" will be constructed by the Columbia Broadcasting System on 15 acres of land in Los Angeles, the Columbia Broadcasting System announces.

The network says the move is the first in the United States to build telecast facilities specifically and solely designed for the new industry. Only the land has been purchased so far.

Actual building will follow an exhaustive functional and engineering survey aimed at preparation for all foreseeable future trends in design and technique. An architectural survey, planned to encompass the most efficient and effective designs for a new industry, will also be conducted.

WASHING AT MERRY-GO-ROUND: Twenty radial sections of roller conveyor are used by Maytag Co., Newton, Iowa, when it puts its automatic washers through a 20-minute simulated washing cycle during final inspection. The rotary conveyor merry-go-round is one of two, each of which can accommodate 40 washers. At each indexing two washers resting on their crate bottoms are pushed off and replaced by two more

Armco Has New TV Alloy

Development of a new stainless steel that will reduce the cost of metal for metal-glass television viewing tubes was announced by Armco Steel Corp., Middletown, O.

The new alloy, Armco 430 ELC stainless steel, was developed specifically for metal-glass picture tubes after more than a year of intensive research.

With the trend to larger television screens and more recently to the rectangular tube, television manufacturers have become increasingly interested in the metal-glass tube. A drawback, however, has been the cost of the special stainless steel required for the metal tube section.

To get continuous thermal contraction of about the same rate as glass during cooling, it formerly was necessary to use either 28 per cent chromium steel or 17 per cent chromium steel with special stabilizing elements, the company pointed out. These ferritic alloys can be sealed to glass successfully because they undergo no phase change on cooling after the glass sealing operation. Most ordinary steels change their metallurgical structure at some point during their cooling, which results in a change in rate of contraction that can break the glass-to-metal seal.

Development of 430 ELC permits Armco to produce a low-cost ferritic stainless steel without use of expensive stabilizing elements by reducing the carbon content to below 0.03 per cent. Type 430 ELC is made by the same process used to produce Armco's other extra-low carbon grades of chromium-nickel stainless steel.

Peters Buys Leader Iron Works

Controlling interest of Leader Iron Works Co., Decatur, Ill., was acquired by Julius H. Peters, formerly associated with Colonial Iron Works, Cleveland.

Leader specializes in the manufacture of large steel and alloy chemical processing equipment, bulk, underground and farm oil storage tanks. It has an operating plant of 66,000 square feet. Its normal employment is 120.

Bendix Gets CAA Contract

The role of the Radio Division of Bendix Aviation Corp. as a supplier of GCA (Ground Controlled Approach) radar system for guiding planes to a safe landing through all kinds of weather was emphasized when the division was awarded $2.5 million in contracts from the Civil Aeronautics Authority for 28 units.

Bendix will manufacture and install GCA in 28 control towers at civil airports in the United States and Alaska. Bendix, under the contracts, will also build and install airport surveillance radar (ASR) and precision approach radar (PAR) units.

Elevators Will Cut Charging Time

An elevator system being built by Westinghouse Electric Corp. for charging scrap and other materials into Armco Steel Corp.'s new open hearths in Middletown, O., will speed the operation by 57 per cent. The contract calls for installation of four special hydraulic-type elevators to serve three furnaces. Charging time will be reduced from 3½ to 1½ hours.

Each elevator will be fitted with a 10 by 20-foot platform for carrying charging buggies from yard level up 20 feet to the furnace charging doors. They will lift a 45,000-pound load in 30 seconds with a maximum rating of 60,000 pounds in 38 seconds. Loading will be at right angles to the furnace and elevators will revolve 90 degrees to permit unloading buggies in line with the furnace doors. Completion of the job is expected about Nov. 1.

Speak Out for American Way

Employees of Basic Refractories Inc. stated their faith in free enterprise and the American way of life by sponsoring full page advertisements stating their beliefs and pledging their support to maintaining these beliefs. The advertisements appeared July 3 in local newspapers at Tiffin, Fremont and Green Springs, O., cities adjacent to the company's plants in Maple Grove and Bettsville.

Windows of Washington

By E. C. KREUTZBERG — Washington Editor, STEEL

Sawyer and Capehart think small business needs ready access to capital and more liberal depreciation treatment. Will the "Small Business Act of 1950" fix that up?

IS the present wording of the proposed "Small Business Act of 1950" enough of an approach to the problem of government aid to small business?

Members of the Senate Banking & Currency Committee asked the question when examining witnesses appearing on behalf of the measure. Commerce Secretary Charles Sawyer agreed with Sen. Homer E. Capehart (Rep., Ind.) that small business not only needs ready access to capital but more liberal depreciation treatment. The senator said he would introduce at least three amendments:

1. To exempt the first $50,000 of corporate profits from taxation.

2. To permit depreciation to be charged off in five years.

3. To make it mandatory for the government to place 50 per cent of its procurement with small business.

The bill would authorize the secretary of commerce to encourage small business loans by banks. It would authorize a contemplated chain of "national investment companies" by insuring 90 per cent of the loans of up to $25,000 total for each borrower at a premium charge of 1½ per cent per annum. The national investment companies would receive special tax incentives. The bill would authorize the secretary of commerce to provide technical and managerial aids and conduct "developmental, engineering and technological research" for the benefit of small business.

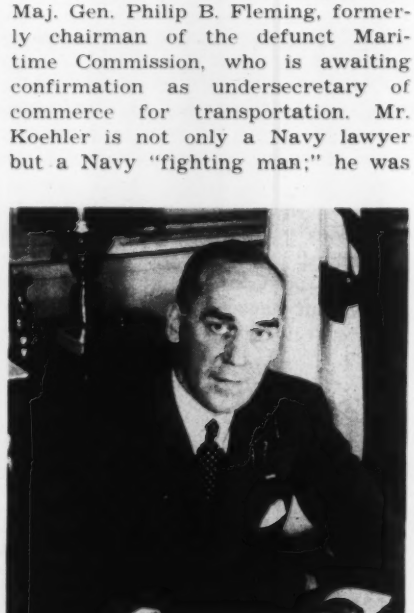
Some of the larger banks—Bank of America, Guaranty Trust Co., Chase National, National City and others—have set up facilities for small business loans, but the situation needs much further improvement, says Secretary Sawyer. He told about a small manufacturer, employing about 60 men who could not obtain a bank loan of $15,000 to execute a government contract coming to about $90,000. "My last information was that he planned to mortgage his home, borrow some money from a brother, and try to get by on less funds and beg his suppliers to help him over the hump."

Sen. Burnet R. Maybank (Dem., S. C.) thinks the small business bill has a good chance of being enacted this year because Congress is likely to remain in session at least until Sept. 1. But the questions being asked by other committee members seem to indicate that they want to study the small business situation more intensively before they agree on a bill.

Koehler: Top Maritime Sea Dog

New top dog over federal maritime activities is John T. Koehler (pronounced Kay-ler) who, while continuing as assistant secretary of the Navy, heads two new units that supersede the abolished Maritime Commission. These are an independent Federal Maritime Board and a Maritime Administration in the Department of Commerce.

To give special attention to the controversial question of determining ship construction and operating subsidies Mr. Koehler appointed an Office of Subsidy and Government Aids. In formulating certain policies Mr. Koehler will consult with Secretary of Commerce Charles Sawyer and Maj. Gen. Philip B. Fleming, formerly chairman of the defunct Maritime Commission, who is awaiting confirmation as undersecretary of commerce for transportation. Mr. Koehler is not only a Navy lawyer but a Navy "fighting man;" he was awarded the Silver Star for his services as commander of underwater demolition teams that scored important successes in World War II.



JOHN T. KOEHLER
. . . he heads two new units

Sawyer Asks Sale Authority

Commerce Secretary Charles Sawyer asked Congress for authority to consider a proposal by Warrior & Gulf Navigation Co., subsidiary of Tennessee Coal, Iron & Railroad Co., to buy some water and rail facilities from Inland Waterways Corp. They are between Port Birmingham and Ensley, Ala., on the Warrior river.

If Congress authorizes the sales, said Mr. Sawyer, TCI would operate the facilities as a common carrier and would guarantee adequate service at reasonable rates for all shippers.

If the sale is not consummated, he said, TCI probably will install parallel facilities, in which case the Inland Waterways Corp. would lose tonnage that constitutes the principal business of the Warrior river system. Mr. Sawyer is asking for authority to consider competitive bids for the sale of the system and permission to apply the proceeds to rehabilitation of the Federal Barge Line service on the Mississippi and Missouri.

Should Congress refuse to authorize the sale of the Warrior river system, the secretary said, $7 million for the Mississippi-Missouri system and $3,250,000 for the Warrior system will be needed at once for replacement of present equipment.

Offer by a group of private carriers headed by Henry F. DeBardeleben, Birmingham, Ala., to lease the transportation facilities of the Inland Waterways Corp., exclusive of its terminal operations, is unsatisfactory in its present form, Mr. Sawyer said: It doesn't provide for replacing present unsatisfactory equipment.

Bituminous Miners' Earnings Rise

Average hourly earnings of bituminous coal miners rose from $2.014 in March to $2.02 in April, says the Department of Labor's Bureau of Labor Statistics.

In March average weekly hours totaled 39.3 and in April 36.0; average weekly earnings were $79.15 and $72.72 for the respective periods, the department points out.

Six Steps to Export Success

"Six Steps in Successful Exporting Under ECA Financing" may be had

at no charge from the Office of Information, Economic Cooperation Administration, 800 Connecticut Ave., N.W., Washington 25.

The booklet was prepared in response to a demand from American companies that wanted to be sure of the steps to be taken to handle sales to firms in European Recovery Program countries financed by Marshall Plan dollars.

What's the Percentage?

An advertising agency executive not so long ago asked the Federal Trade Commission what percentage should be added to basic cost in selling a product, and here's what the commission's reply was:

"No principle is more firmly established under the antimonopoly laws than that it is an unreasonable restraint of trade and an unfair method of competition for enterprises in the same line of business to agree upon selling prices or upon significant elements in selling prices. It is also well established that an agreement is found where there is an actual meeting of the minds, whether or not there has been a formal exchange of views or a formal drafting of the agreement, and whether or not the agreement was reached through an intermediary. Accordingly, your search on behalf of your client for an 'accepted' ratio of cost to final selling price is one which, if successful, might subject both that client and your agency to serious legal risks. In the Federal Trade Commission case against Building Materials Dealers Alliance, decided Dec. 30, 1937, one of the charges sustained against the respondents was that they agreed upon a mark-up above cost."

Lower Cost Housing Research

Costs of marketing building materials will be studied by the University of Pennsylvania under a research contract with the Housing and Home Finance Agency, as part of a comprehensive research program aimed at reducing housing costs.

Linde Offers 13 Patents

Linde Air Products Co. placed an additional 13 patents on the Patent Office's "Register of Patents Available for Licensing or Sale." They cover air separation into nitrogen and oxygen; production of high-purity hydrogen; smelting of metallic carbides; simultaneous blast furnace production of pig iron and portland cement; generation of gas from coal, coke and similar fuels; smelting scrap steel and other materials fusible only at high temperatures; and a blast furnace having blast inlets near base of hearth and gas inlets at junction of stack and hearth. Patents numbers are listed in the Patent Office's *Official Gazette* of June 27, 1950.

'Technical Reports Newsletter'

If you're not on the subscription list to receive copies of the monthly publication "Technical Reports Newsletter" you may be missing out on new government technical reports of possible assistance.

The June issue, for example, lists new reports on chromium-base alloys, on cleaning of metallic surfaces, on the manufacture of titanium alloys, plastic coated electric wire, properties of high-valued resistors, transistors and crystal rectifiers, food container coatings, etc. Subscriptions may be placed with Office of Technical Services, Commerce Department, Washington 25. The price is 50 cents a year.

Mine Incentive Legislation Killed

The House Rules Committee voted 5-4 to pigeonhole H.R. 8221. The bill would provide $165 million over a four-year period to aid mine operators of strategic minerals in new exploration, marginal production and maintenance of mines in standby condition.

That means the end of legislation this session unless the Senate should pass a bill of its own and send it to the House.

Copper Tax To Be Considered

Whether or not Congress again will order suspended the 2 cent per pound import tax on copper is a question to be examined by both the House Ways and Means Committee and the Senate Finance Committee.

The Ways & Means Committee scheduled hearings to start July 10. The Senate Finance Committee agreed to consider the matter of copper import tax during its tax revision bill hearings that started July 5.

The Senate has not yet acted on the House-passed bill to continue suspension of the copper import tax for two months beyond the June 30, 1950, expiration date.

'Dutch' Treatment

The Economic Cooperation Administration's Office of Small Business released a statement that will interest American suppliers seeking to do business with the Netherlands:

"The Netherlands government informed the ECA Mission in the Hague that as a rule traditional or historical trade channels are not a governing factor in granting import licenses. There are some exceptions, notably in the fields of petroleum and automotive vehicles.

"The Netherlands government gives assurance that open competition is a definite factor in ECA-financed importations and that American small business is assured of the full opportunity to participate."

Oil Import Restrictions Asked

Korean hostilities make the need for government action to restrict imports of foreign oil incalculably more acute, reasons Rep. Harry J. Davenport (Dem., Pa.).

He charges that the flood of oil from abroad, in usurping markets for domestic fuels, is responsible for the disruption of U. S. coal and railroad industries to a point where they won't be able to return to "maximum capacity and utility" in case there's a national emergency.

Stockpile Price for Manganese?

Proposals that the government set a stockpiling purchase price of somewhere between $1.50 and $2 a unit of manganese are under consideration by a special subcommittee, of the House Armed Services Committee.

This subcommittee, of which Rep. Carl T. Durham, (Dem., N. C.) is chairman, is investigating the situation in strategic and critical minerals.

Those advancing the proposal (it would call on the federal government to pay at least twice the present import price of 80 cents per unit, c.i.f. tidewater) included Dr. James Boyd, director, Bureau of Mines, and J. Carson Adkerson, president, American Manganese Producers Association. Dr. Boyd forecast that the United States could become self-sufficient in manganese ore within two years if domestic mine operators were paid a sufficiently high price to serve as incentive.

"Since 1927," Mr. Adkerson told the congressmen, "I have constantly warned that Russia would lead us on with just enough manganese to get us to depend on her ore—and then at a critical hour cut us off."

Synthetic Fuels Program

Rep. J. Hardin Peterson (Dem., Fla.) introduced H.R. 8975 to amend the Synthetic Liquid Fuels Act of April 5, 1944. As already amended the act expires in 1952. Mr. Peterson's bill would extend it for an additional three years and appropriate another $25 million for the program.

Japanese Steel Industry Greatest in East

The basic industry of Nippon is still steel. Annual capacity is 7 million tons. Although that isn't impressive, it's top hole for that part of the world

KOREA juts from the Asian mainland like a misshapen hand. Controlled completely by Moscow, that hand could flourish a dagger at Japan, still the most industrialized area in eastern Asia despite the ravages of World War II.

Japan's output of metals, machinery, chemicals and textiles is no longer impressive compared with production in other parts of the world, but it is still head and shoulders above that of any other country in her part of the globe.

The Keystone—The basic industry in the islands continues to be steel. Japan has an annual steel capacity of 7 million tons. Facilities range in condition from good to very bad. She is operating now at well below 50 per cent of capacity, using chiefly her smaller equipment. In finished steel, Japan's 1948 production averaged 105,000 tons a month, of which 92,000 tons were rolled products. Plates, sheets, bars and wire rods were the leading products in that order.

Nearly all the iron and steel industry is concentrated in four areas: Northern Kyushu, Osaka, Tokyo-Yokohama and northern Honshu-Hokkaido. The Kyushu installation is based on nearby coal; the Honshu-Hokkaido works on sources of domestic ore. Both the Osaka and Tokyo-Yokohama plants are dependent upon materials brought in either from overseas or from domestic producing areas.

Korean Pig Iron—Before the war, Japan imported large quantities of pig iron from Korea and Manchuria. Japan has a peak domestic pig iron capacity of 17,850 tons per day. Furnaces and furnace practice are modern. The Japanese also have eight kiln plants to produce sponge iron from limonite and iron sands. Peak output was 100,000 tons in 1944.

In the production of steel, Japan can use 193 open-hearth furnaces of American and German design and 440 electric furnaces, mostly of the Heroult type. The electric furnaces are small, most of them ranging in capacity from 1 to 20 tons. In the latter part of the war, one-third of Japan's steel came from the electrics.

From Nails to Ships—Japan's steel rolling and fabricating industry is adequate both in size and in quality of equipment for most modern purposes. Chiefly of American and German design, the equipment can turn out anything from nails to battleship plate. Technology can't match the equipment.

The biggest steelmaking center in Japan is that of Yawata in northern Kyushu. It's the oldest plant in the empire and now contains about one-third of the pig iron and ingot capacity of Japan. It has 12 blast furnaces, 46 open hearths, 13 electrics, 7 blooming mills and 2 rolling mills, one of which is a continuous strip mill built by United Engineering. The Hirohata plant near Osaka is the best and most modern plant in Japan, if not the entire Far East. Started in 1937, it has never been completely finished. It has two 1000-ton blast furnaces, six 150-ton open hearths and the largest continuous plate mill in the islands.

Poor, but Not That Poor—Japan has few natural mineral resources, but they are still more extensive than you might think.

She is best supplied with coal, producing more than 50 million tons a year during the war. The quality is poor, but she can up-grade it by mixing it with imported bituminous.

Total proved reserves of workable iron ores probably don't exceed 10 million tons, with an iron content of about 40 per cent. Most of the domestic ore is in the magnetite deposit at Kamaishi in northern Honshu and the limonite bog iron deposit in Hokkaido. Peak output of domestic ore was about 3.5 million tons in 1944, with an iron content of about 1.5 million tons. Over 750,000 tons of iron sands were mined that year.

The empire has adequate supplies of limestone and dolomite and also limited quantities of gold, silver, copper, lead and even oil.

One of her most important natural resources is rivers and streams from which she generates her electric power vital to all industries.

Tough Row To Hoe—Except for cheap power and cheap labor, everything else is expensive to Japanese industries today. All industries, but particularly steel, are plagued by: Unrepaired war damage, rising costs of imported raw materials, falling exports of finished goods.

Finished steel exports are falling because: The British and Belgians can undersell the Japanese in sterling markets of the Far East and in the dollar market in the Philippines; devaluation of the pound and most of the other western European currencies gave those countries an edge over Japan where the yen was kept at the previous rate of 360 to the

Black Star

In the Japan Steel Tube & Pipe Co. rolling mill men wear straw or wooden waraji sandles to protect their feet against the steel floor. On the right, a group of men work on a steel pour in the firm's Yokohama plant

dollar; the Japanese government is removing subsidies from many products such as coal which affect the iron and steel industry. The quality of Japanese products, generally, is considered poor.

People's Republic: Mailed Fist of Korea

North Korea has the steel capacity, southern Korea the rice paddies. The entire country was never organized by its many wooers as a self-sustaining economic unit

THE PEOPLE'S Democratic Republic (North) is the mailed fist of Korea. It has most of the country's industry, its power plants, its iron and coal mines. Southern Korea has most of the country's rice paddies, its population and its refugees.

Information Please—The economy of the country, though never organized by the Japanese as a self-sustaining economic unit, was clipped in two by the 38th parallel. The division between the United States and Soviet forces along the parallel, incidentally, was a line of demarcation adopted originally for the surrender of Japanese forces. It was never intended to be the artificial barrier it has become.

Neither Japanese nor Chinese, Koreans are a mongoloid people who have been wooed intermittently for the last fifty-odd years by: The Chinese, the Russians, the Japanese, the Americans. In the 1890s the Japanese wiped out the Chinese influence by main force. In the Russo-Japanese War (1904-05) Japan expelled the Russians, the last remaining competitor for dominance in Korea. In 1910 the annexation of Korea by Japan gave it the continental base it was looking for. And Korea was a rich plum. The Japanese organized its wealth of natural resources and economy into a integral part of the Japanese empire. It was geared to contribute to the war-making potential of Nippon.

Playing It Cagey—In their development of the Korean economy, the Japanese made certain that key links in the productive chain were controlled by their own technicians. Thus, the tungsten that Koreans produced was shipped to Japan where tungsten wire was produced. After that it was re-shipped to Korean plants to be used in the manufacture of light bulbs.

When the war ended there was a complete collapse of all manufacturing effort. Few Koreans had the technical training to fill the vacanices created by the removal of the Japanese. Factories, built to produce war goods, were not suited to a peacetime Korean economy. When Korean financial and economic relations with Japan and the yen bloc countries were ended, the Korean collapse was even more pronounced: Nearly 95 per cent of Korean prewar imports came from those countries.

Last Straw—On top of all that came the division at the 38th parallel. The hydroelectric power, chemical and metalworking industries of the north are a necessary complement to the agricultural and textile industries of the south. The separation of the country into two zones left southern Korea desperately short of coal and fertilizer and dependent on the authorities in the People's Republic for electric power.

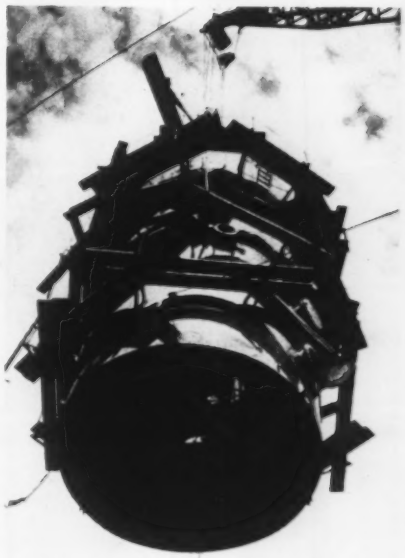
While U. S. Military Government officials have furnished technical help and some technicians and have tried locally to rebuild south Korea's industry, production in most industrial plants two years ago was less than 20 per cent of capacity. Shortages of raw materials, lack of replacement and spare parts, too few skilled laborers and transportation and power difficulties contributed to the low production.

Since 90 per cent of the electric generating power plants in Korea are up north, there always were, as in Berlin, spasmodic power cut-offs. In South Korea there are six generating plants rated at 197,600 kva that supplement power produced in the Russian zone to serve about 610,000 customers.

Stripped Down—Minerals, ores and metals were Korea's second largest source of exports before World War II.

Although most of the minerals needed for heavy industry are located in the north, southern Korea has supplies of tungsten, graphite, molybdenum, fluorite and gold. Some of the metals mines were stripped entirely by the Japanese, but the large mines are back in production even though they lack machinery.

The railroad system in the south—the core of the transportation system in the mountainous country—has suffered from four years of wartime neglect by the Japanese. The railroads barely maintained service before the outbreak of hostilities. Rolling stock and locomotives are in bad shape and inadequate in number. At one time only 182 of southern Korea's 474 badly worn engines were operable. A hundred excess U. S. army locomotives that were assigned to Korea only succeeded in bringing the total up to the minimum requirements.



NEA

STRANGE APPARITION: Hanging in the air is a 25-ton section of an atmospheric fractionary tower for a pipe still in England. It is being lowered into position on the side of the big oil refinery under construction at Fawley. Refineries like the one at Fawley have enabled England to remove gas rationing

Annual Korean capacity for iron, steel and finished rolled steel was appraised a few years ago as:

Pig iron, 815,000 tons; sponge iron, 320,000 tons; open-hearth steel, 505,000 tons; electric furnace steel, 165,000; and finished rolled steel 220,000 tons.

Most of the production was in the north. Kyomipo, a port on the Yellow Sea near the Communist capital of Pyongyang, could produce about 440,000 tons of pig and 240,000 tons of open hearth. Runner-up in capacity is Chongjin which can produce 370,000 tons of pig, 190,000 tons of sponge and 250,000 tons of open hearth yearly. It is a city on the Sea of Japan near the northernmost reach of Korea.

Steel production in southern Korea is very limited: Inchon, port for Seoul, has an annual capacity of 60,000 tons of pig iron, 50,000 tons of electric steel and 20,000 tons of open hearth. Pusan, also in southern Korea, has an annual capacity of about 15,000 tons of electric steel. All other production is in the People's Democratic Republic.

MAKE A TON OF SHEET STEEL GO FARTHER

Specify—

N-A-X

HIGH-TENSILE STEEL

SEVEN STRONG REASONS explain the trend to N-A-X HIGH-TENSILE steel in the manufacture of commercial vehicles.

- NAX FINER GRAIN STRUCTURE
- NAX GREAT IMPACT TOUGHNESS
- NAX HIGH STRENGTH
- NAX HIGH FATIGUE RESISTANCE
- NAX GOOD FORMABILITY
- NAX EXCELLENT WELDABILITY
- NAX HIGH CORROSION RESISTANCE

GREAT LAKES STEEL CORPORATION

N-A-X ALLOY DIVISION • ECORSE, DETROIT 29, MICH. • UNIT OF NATIONAL STEEL CORPORATION

By A. H. ALLEN *Detroit Editor, STEEL*

Mirrors of Motordom

Auto builders have no "war" orders and don't expect any, but rumors spur the public to order cars, swelling further the phenomenally heavy demand on the automakers

DETROIT

RENEWED buying surge—if such a thing is possible these days—accompanied the outbreak of hostilities in Korea as car buyers rushed to get their orders placed.

In some sections of the country, particularly along the East and West Coasts, the drive on automobile sales rooms was of near-panic proportions, accompanied by all kinds of rumors of how the motor plants were closing down to change over to production of military equipment. Chrysler and Cadillac were supposed to be already going on tank-building programs, somebody else was starting to make machine guns, etc., etc.

The Truth—All such reports are preposterous, of course. No auto plant has any "war" orders, and none expects any. But you cannot make some of the public believe it, so continuing good business in cars and trucks is expected.

The Army did announce last week the placing of orders for 7900 military trucks, but they were just routine replacement units, part of a buying schedule released last June. Studebaker was awarded 4000, Reo 3900. As for tanks, the Detroit Arsenal here continues to turn out a few 45-ton General Patton models and to rebuild worn-out General Sherman 25-ton types.

Chevrolet Sets All Time Record

Chevrolet racked up an all time production record for the automobile industry by building 1,002,840 passenger cars and trucks in this country during the first six months of the year, along with 32,926 passenger cars and 13,567 trucks in Canada. The old record stood for better than 25 years and until recently few manufacturing and production men believed it could be surpassed under modern competitive conditions.

In setting the new record, operations last month reached the highest volume in the history of the division, breaking all previous monthly, weekly and daily peaks. U. S. plants built 161,852 passenger cars and 49,278 trucks, far ahead of the former record set in March this year. The new weekly record was set in the third week of June—50,784. New peak for a single day was on June 29 when 9440 units were assembled. As an indication of the blistering production pace, the former daily high of 8466 was topped 14 times in June. The six-month total exceeded the like period of 1949 by more than 50 per cent.

Busting Out All Over — Records were busting out all over at Cadillac, too, last month. Leading the list was all time high monthly production of 11,309 cars, beating the previous peak by 16 per cent. In the June 12 week 2798 units were assembled, 200 more than in any weekly period before. On June 12, the 500-mark was passed for the first time in history, and on June 22 the count rose to a phenomenal 535.

Total for the month crossed 10,000 for the first time, and brought the six-month aggregate to 46,323. Even so, the number of Cadillacs now on order, coupled with a continuing demand, "far exceeds the building volume," General Manager John F. Gordon reports.

Olds Expands, Revamps Plant

More plant expansion and rehabilitation, to the tune of several million dollars, has been decided upon by Oldsmobile. The program will include a new steel storage and plant engineering building, plus some expansion of fabricating facilities at the Lansing, Mich., main plant.

Two of the original Olds plant buildings, dating back to 1901, will be razed to make way for the new building, while five other old structures in the mid-plant area will be torn down, including the original motor plant and toolroom, now used for sheet steel storage, and the first body paint and final assembly plant, now utilized for receiving materials and stores. The first sheet metal and enameling plant, now housing maintenance and machine repair, also will be removed. Old power house, incinerator, steam distribution and air compressor rooms complete the list.

When the Olds Motor Works burned down in Detroit back in 1901, a group of civic-minded Lansing business men offered the company part of the state fairgrounds property for a plant site. It is on part of this site that the buildings to be razed are located. The new steel storage and plant engineering building will be

GOING TO MONTEREY? Latest offering in the "hard top convertible" class is Mercury's Monterey. It has a grained vinyl-leather covering in yellow, blue or black on the steel top. The "customized" coupe, in limited production now, features either all leather or combinations of leather and Bedford cord upholstery, offset with chromed garnish moldings, two-tone instrument panel, other swank detail

(Material in this department is protected by copyright and its use in any form without permission is prohibited)

325 x 508 feet in size and will provide about 179,000 square feet of floor area. It will be a high-bay structure with craneways for unloading steel and other materials. Two railroad spurs will permit unloading freight cars inside the building.

There will also be an unloading area for trucks which bring steel to the plant. Facilities for storage of sheet, strip and bar steel will be provided, as well as storage of machine repair parts and dies. At the rear of the building will be a two-story addition to the adjacent paint department. Also housed in the new building will be the plant engineering shops for sheet metal work, carpentry, electrical work, machine repair and pipefitting.

The program will provide additional facilities for axle production. New material handling equipment, conveyors and a score of new machines will be installed in the complete modernization of the present axle plant. The railroad dock will be rebuilt on the north side of the building where parts and materials are received.

Packard Improves Plant

Packard has embarked on a $1 million plant improvement program to be completed by yearend. Topping the list of expenditures will be the erection of four test cells and a sub-zero laboratory room at the company's proving grounds near Utica, Mich., and the installation of new equipment in the main power house. The estimated cost of each project is $300,000.

In addition, several sections of the plant will be revamped and improved. The entire electrical system has been modernized at a cost of approximately $100,000.

Final assembly operations were terminated several weeks ago, and the first of the completely restyled 1951 Packards will make their appearance late this month. The changeover has been of longer duration than normally, and should provide dealers with ample time to clean up all stocks of 1950 models. Sales for the last several months have been running well ahead of production.

The New Look

The new vinyl-topped Monterey is Mercury's answer to popular demand for sports models and the so-called hard-top convertibles. It is a standard coupe, with vinyl leather in either yellow, black or dark blue cemented over the steel roof panel. Lincoln will offer similar models, to be called the Lincoln Lido and Cosmopolitan Capri. The former comes in four color combinations—Lima tan metallic with seal brown top; Yosemite green metallic with oyster white top, and Bonita blue metallic with dark blue top, and Raven black with light gray top. The Capri goes all out for luxury treatment in color and fittings. Thus one version offers Manitou red metallic body finish with tan top and red leather and red cord trim with tan sail cloth headlining. Swish!

Also bidding for the suburban trade is a new type of Ford station wagon dubbed the Country Squire. By removing the rear seat—no tools required—and folding away the center seat, a level floor surface of 38.8 square feet is created, with a depth of more than 9 feet from the back of the driver's seat to the end of the level-loading tailgate. It is a two-door model, featuring mahogany-grained steel side panels, framed with natural maple or birch. Rear deck is all steel with tire mounted on the outside.

The new hard-top convertible model that Ford Division will introduce shortly will also feature a vinyl plastic covering cemented over the outside of the steel top. Officially no name has been announced for the model, but one report around Detroit is that it will be called the Crestline.

Auto, Truck Output

U. S. and Canada

	1950	1949
January	609,882	445,092
February	505,593	443,734
March	610,678	543,711
April	585,705	569,728
May	732,161	508,101
June	890,000	523,689
Six Months	3,934,019*	3,034,055
July		604,351
August		678,092
September		657,073
October		601,021
November		474,731
December		384,318
Total		6,533,641

Weekly Estimates

Week Ended	1950	1949
June 17	204,704	146,056
June 24	205,334	153,001
July 1	194,259	144,822
July 8	117,000	118,611

Estimates by Ward's Automotive Reports

* Preliminary.

Dearborn Using New Facilities

First units of Dearborn Motors Corp.'s $3 million warehouse and research engineering buildings have been placed into operation at Birmingham, Mich.

The warehouse is equipped with the latest ideas in mechanical handling equipment. One innovation is the use of metal stacking boxes instead of stationary parts bins, permitting greater flexibility in handling, shipping and storage. Under development is a new parts packaging program which will be started in a few months.

The warehouse contains 110,000 square feet of storage space. The area is divided into a receiving section and a loading section with space for five 40-foot cars on rail sidings in each section. Four truck wells in each section also are provided, with hydraulic leveling docks installed to handle direct loading and unloading of trucks with varying bed heights.

K-F, UAW Agree on Pensions

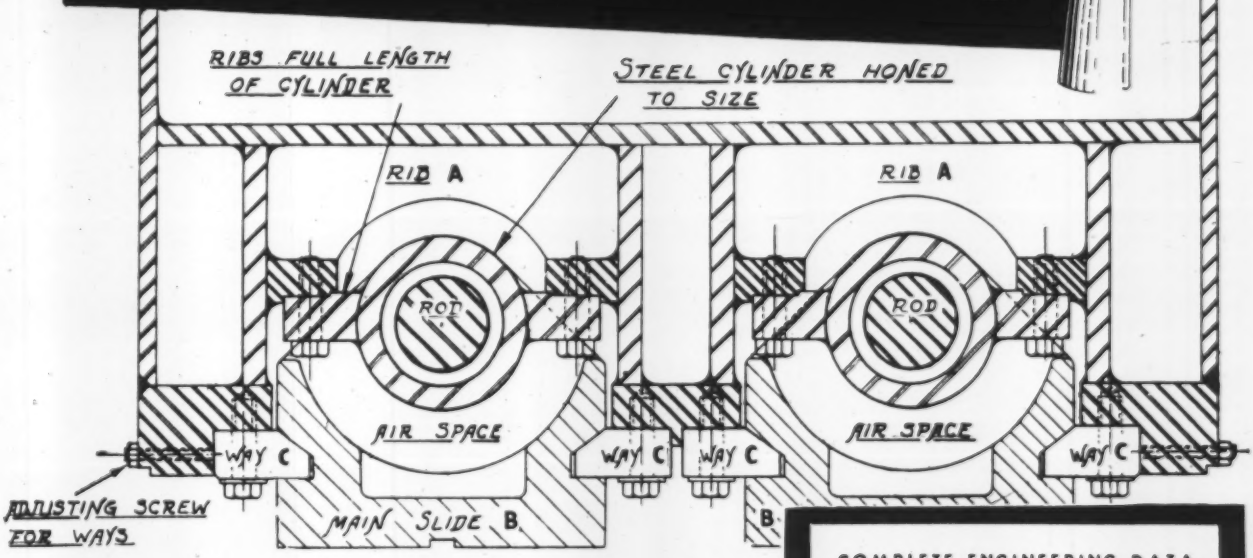
Kaiser-Frazer and the UAW-CIO have agreed on an employee retirement plan providing overall pensions of $100 per month which may be increased to as high as $125 monthly if pending federal social security amendments are passed. It is a five-year agreement, covering approximately 10,000 employees at the company's Willow Run, Detroit, Jackson and Dowagiac plants. There is no compulsory retirement at any age, employees desiring to continue employment beyond the normal retirement age of 65 being permitted to do so if capable of fulfilling job requirements. Company payments into the retirement fund amount to 6 cents an hour. The plan is in addition to a social security fund established in 1948 into which K-F pays 7 2/3 cents for each compensated hour. The latter provides hospitalization and surgical benefits.

Veteran Ford P. A. Retires

Retirement of veteran purchasing executive H. C. Kellogg has been announced by Ford. His duties as director of purchasing engineering will be assumed by his assistant Henry Rourke.

Mr. Kellogg began his engineering career with the Root & Van Duvoort Engineering Co. and in 1918 joined Ford's engineering department as a Liberty engine tester. In 1920 he was appointed resident engineer at Iron Mountain, Mich., where he supervised construction of the Ford plant. He was appointed assistant director of purchasing engineering in 1920 and the following year became director. Over the years he became well known and liked throughout the automotive parts and supply trade.

What engineering features are responsible for LAPOINTE LEADERSHIP in building BROACHING MACHINES?



RIGIDITY is essential

. . . as every Master Mechanic knows! This drawing shows how Lapointe Vertical Broaching Machines are designed for *maximum rigidity and ruggedness*, absolutely necessary for proper performance.

A Note how the strong, heavy ribs are placed and braced, to insure against any vibration, shock or strain. Here is the very backbone of the machine.

B The main slide is *heavy*, designed to carry the broaching tools in a positive, firm, effortless cutting stroke.

C Ways are automatically lubricated, and adjustable in two directions by a simple jack-screw. Being twice as long as the slide, the slide never comes off the ways even when the full stroke of the machine is used.

LAPOINTE takes the responsibility for the entire job — machines, tools, and fixtures. That's a big reason for Lapointe Leadership . . that's why "Lapointe's the way to *better broaching!*"

COMPLETE ENGINEERING DATA

and dimensions on double ram and single ram LAPOINTE Vertical Broaching Machines will be found in these two illustrated bulletins. You are invited to send for Bulletins DRV-3 and SRV-3.

LAPOINTE Vertical Broaching Machines are all built to JIC Standards at no extra cost.

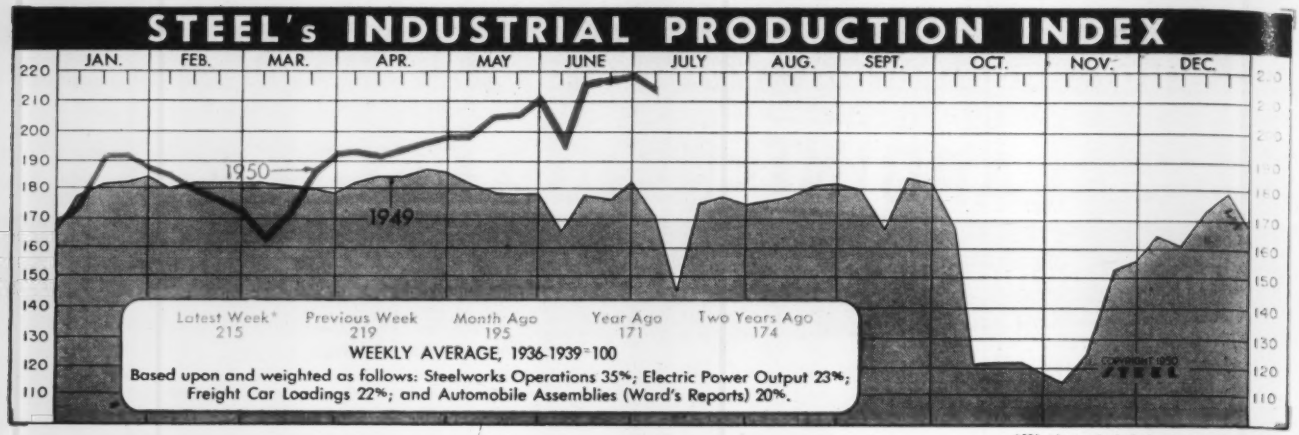
THE Lapointe MACHINE TOOL COMPANY

HUDSON, MASSACHUSETTS • U. S. A.

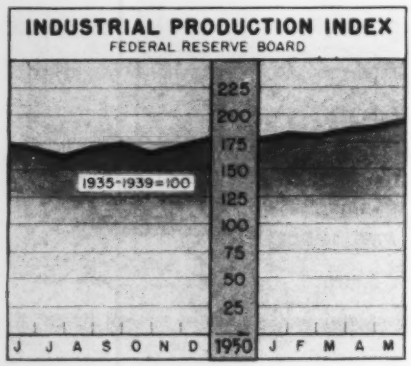
Branch Factory • Edgware • Middlesex • England

HUDSON LAPOINTE MASS.

THE WORLD'S OLDEST AND LARGEST MANUFACTURERS OF BROACHES AND BROACHING MACHINES


STEEL's INDUSTRIAL PRODUCTION INDEX
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.
220 210 200 190 180 170 160 150 140 130 120 110
1950
1949
Latest Week* 215
Previous Week 219
Month Ago 195
Year Ago 171
Two Years Ago 174
WEEKLY AVERAGE, 1936-1939=100
Based upon and weighted as follows: Steelworks Operations 35%; Electric Power Output 23%; Freight Car Loadings 22%; and Automobile Assemblies (Ward's Reports) 20%.
COPYRIGHT 1950 STEEL

*Week ended July 1 (preliminary)

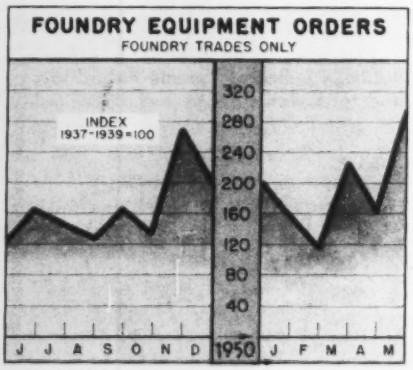


Charts—Copyright 1950, STEEL

Industrial Production Indexes

	Total Production		Iron, Steel		Non-ferrous	
	1950	1949	1950	1949	1950	1949
Jan.	183	191	203	228	179	184
Feb.	181	189	201	232	188	185
Mar.	187	184	205	233	199	183
Apr.	190	179	222	219	196	168
May	193	174	225	204	195	145
June	....	169	....	177	....	132
July	....	162	....	156	....	128
Aug.	....	170	....	178	....	141
Sept.	....	174	....	179	....	157
Oct.	....	166	....	103	....	164
Nov.	....	173	....	144	....	163
Dec.	....	180	....	198	....	165
Avg.	....	176	....	187	....	160

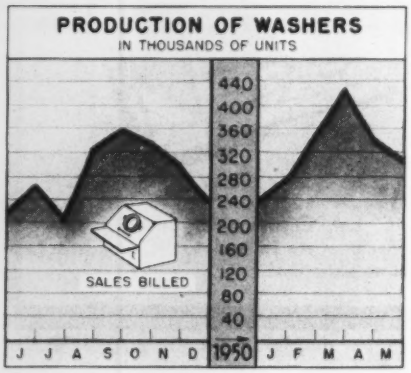
Federal Reserve Board



Foundry Equipment Orders

	Index		Value in Thousands	
	1950	1949	1950	1949
Jan.	159.3	149.9	$731	$694
Feb.	113.1	144.4	519	668
Mar.	225.2	190.8	1,034	883
Apr.	160.6	172.0	737	797
May	294.9	121.9	1,353	565
June	....	164.9	....	764
July	....	146.6	....	679
Aug.	....	127.1	....	589
Sept.	....	166.6	....	772
Oct.	....	133.5	....	618
Nov.	....	270.4	....	1,250
Dec.	....	201.0	....	929

Foundry Equipment Mfrs. Assoc.



Household Washers

Sales Billed—Units

	1950	1949	1948
Jan.	275,576	172,400	360,445
Feb.	342,967	201,300	367,909
Mar.	423,802	242,500	408,512
Apr.	333,072	192,500	402,257
May	304,640	211,700	377,895
June	.....	260,700	392,496
July	.....	200,900	326,181
Aug.	.....	323,789	362,169
Sept.	.....	357,281	433,919
Oct.	.....	333,728	382,400
Nov.	.....	298,717	319,300
Dec.	.....	237,591	183,700
Totals	.....	3,033,106	4,317,183

American Washer & Ironer Mfrs. Assoc.

Issue Dates of Other FACTS and FIGURES Published by STEEL:

Construction June26	Gray Iron June5	Ranges, Elec. June26
Durable Goods June5	Ironers June19	Refrigerators June26
Employ., Steel June19	Malleable Iron June26	Steel Cast. May29
Employ. Metalwkg. ..June19	Machine Tools June26	Steel Forgings June5
Fab. Struc. Steel...June12	Price Indexes May1	Steel Shipments ..June26
Freight Cars June19	Pump Orders June12	Trucks, Elec. Ind...Jan.2
Furnaces, Indus. ..June12	Purchasing Power..June12	Vacuum Cleaners ..June5
Furnaces, W. Air..May8	Radio, TV June12	Wages, Metalwkg...June19

FRB Index Nudges Record High

Production in June at or slightly above the postwar peak reached in late 1948 is the Federal Reserve Board's preliminary estimate.

The board's seasonally adjusted industrial production index for May at 193 per cent of the 1935-1939 average was only 2 points below the best postwar mark. It was up 3 points from the April total and 19 points higher than in May a year ago.

All the metalworking indexes that make up the FRB index except nonferrous metals advanced in May. The nonferrous index slipped 1 point below the April figure to 195. The iron and steel index moved up to 225 from 222 a month earlier. Transportation equipment's index made the largest gain to 248 in May from 225 in April largely on the strength of a phenomenal automobile building pace. A 5-point gain to 256 was registered by the machinery index.

Laundry Appliance Sales Strong

Factory sales of household washers, dryers and ironers in the first five months this year ran well ahead of the year ago period, says the American Home Laundry Manufacturers' Association. Washer sales also came close to equaling those for the like period in 1948, the industry's all-time record year. Dryer sales in the first five months exceeded the total for all 1949.

May's washer sales were 304,640 units, down 8.5 per cent from 333,072 in April but up 42.4 per cent over 214,000 in May, 1949. Although dryer sales declined to 16,122 or 35.9 per cent below 25,140 a month earlier they were up 312 per cent over the 3910 dryers sold in the corresponding month a year ago. May ironer sales totaled 27,400 units, compared to 31,600 in the preceding month and 19,500 in May, 1949.

The Business Trend

June was a very good month for metalworking companies but the war threat throws uncertainties into prospects for the near and long term

METALWORKING industries face additional problems and responsibilities whether or not the Korean war gets a lot hotter and bigger. That is the consensus of most executives and others who can be called qualified observers of the industrial picture. This opinion is not based on the belief that an all-out war is coming but on the fact that an increase in the preparedness and foreign arms aid tempo will put additional strain on industries operating at or near capacity.

Steel may become more difficult for many companies to get. More steel for military use means that firms already hard-pressed for steel are going to get pinched a little harder. There is already talk about the government allocating steel to keep essential programs going. The railroads will be urged to step up their freight car buying programs.

Nonferrous metals particularly copper, will get tighter as stockpiling gets a boost. Aluminum requirements will go up if the expected increase in aircraft construction goes through.

In the week ended July 1 STEEL'S industrial production index eased to a preliminary 215 per cent of the 1936-1939 average from the 219 alltime high recorded in the preceding week. The 4-point dip resulted from a lower assembly pace in the automotive industry in preparation for a long holiday weekend.

Automobiles . . .

June busted out all over for the auto makers. Postwar and alltime records too numerous to mention fell by the wayside. U. S. passenger car output in June is estimated at 718,000 units, an alltime high and 24 per cent over the previous record set just one month earlier. Truck output, while not an alltime high, was a highly satisfactory 137,000 units and 12 per cent above the May total. Military contracts for trucks let at the end of last month and others nearly ready to be released will help keep truck output at a lofty level.

Steelmaking . . .

There is little excess steelmaking capacity to fill the increasing requirements. Steelmaking furnaces operated in excess of rated capacity for 11 consecutive weeks but the rate dipped last week because of the holiday. In the week ended July 1 the output of steel for ingots and castings was 101.5, the sixth consecutive week of operations at that figure.

Carloadings . . .

Freight carloadings in the third quarter are expected to be 9.3 per cent above those in the same 1949 period. This estimate was compiled by the Association of American Railroads and based on figures submitted by the 13 Regional Shippers Advisory Boards. Freight carloadings of the 32 principal commodity groups are placed at 7,644,826 cars in the third quarter compared with 6,992,722 actual carloadings in the corresponding period a year ago. Expected increases in car-

BAROMETERS of BUSINESS

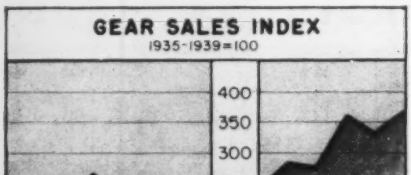
		LATEST PERIOD*	PRIOR WEEK	MONTH AGO	YEAR AGO
INDUSTRY	Steel Ingot Output (per cent of capacity)†	101.5	101.5	101.5	76.5
	Electric Power Distributed (million kilowatt hours)	6,010‡	6,102	5,631	5,410
	Bituminous Coal Production (daily av.—1000 tons)	1,758	1,752	1,700	1,972
	Petroleum Production (daily av.—1000 bbl)	5,340‡	5,355	5,205	4,940
	Construction Volume (ENR—Unit $1,000,000)	$287.6	$256.2	$206.5	$180.9
	Automobile and Truck Output (Ward's—number units)	194,259	205,334	146,825	144,822
TRADE	Freight Car Loadings (unit—1000 cars)	806†	811	710	644
	Business Failures (Dun & Bradstreet, number)	156	147	168	177
	Money in Circulation (in millions of dollars)‡	$27,026	$26,926	$27,088	$27,426
	Department Store Sales (changes from like wk. a yr. ago)‡	+1%	+6%	+2%	−6%
FINANCE	Bank Clearings (Dun & Bradstreet—millions)	$14,459	$15,885	$11,350	$13,499
	Federal Gross Debt (billions)	$256.5	$256.3	$256.4	$251.6
	Bond Volume, NYSE (millions)	$31.5	$16.3	$12.8	$12.4
	Stocks Sales, NYSE (thousands of shares)	17,099	8,046	5,675	3,334
	Loans and Investments (billions)†	$67.8	$67.3	$67.0	$62.6
	United States Gov't Obligations Held (millions)†	$36,873	$36,505	$36,359	$34,515
PRICES	STEEL's Weighted Finished Steel Price Index††	156.69	156.58	156.13	152.80
	STEEL's Nonferrous Metal Composite‡	183.5	184.3	176.8	164.6
	All Commodities†	157.0	157.1	156.8	153.5
	Metals and Metal Products†	173.1	173.0	171.3	166.9

* Dates on request. † 1950 weekly capacity is 1,906,267 net tons. 1949 weekly capacity was 1,843,516 net tons. ‡ Preliminary.

† Preliminary. ‡ Federal Reserve Board.

† Member banks, Federal Reserve System.

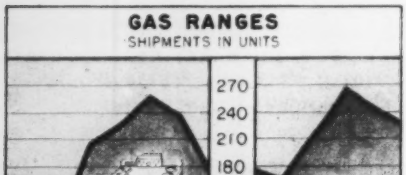
† Bureau of Labor Statistics Index, 1926=100. ‡ 1936-1939=100. †† 1935-1939=100.



Gear Sales Index
1935—1939=100

	1950	1949	1948
January	280.2	320.7	346.8
February	272.9	282.3	324.4
March	358.4	299.1	389.8
April	328.6	339.0	320.9
May	363.1	250.1	283.6
June	....	227.8	324.1
July	....	193.1	384.4
August	....	262.0	335.6
September	....	224.9	320.4
October	....	242.3	333.3
November	....	230.7	309.0
December	....	242.8	325.9

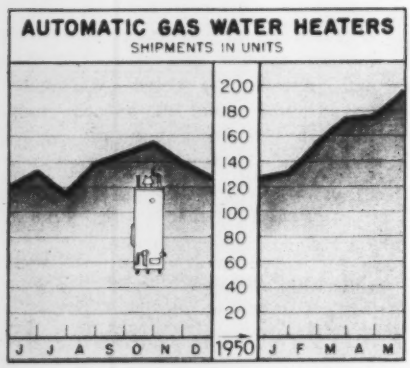
American Gear Mfrs. Assoc.



Gas Ranges
Shipments in Units

	1950	1949	1948
Jan.	165,000	106,700	222,800
Feb.	209,000	117,700	228,400
Mar.	264,000	151,500	252,100
Apr.	246,000	150,100	245,300
May	227,000	151,600	257,800
June	.....	162,200	250,500
July	.....	125,800	203,600
Aug.	.....	206,100	250,100
Sept.	.....	227,300	248,500
Oct.	.....	257,500	257,500
Nov.	.....	237,400	202,300
Dec.	.....	175,700	131,100

Gas Appliance Mfrs. Assoc.



Automatic Gas Water Heaters
Shipments in Units

	1950	1949	1948
Jan.	131,600	88,400	126,600
Feb.	154,000	84,500	110,900
Mar.	172,800	106,000	131,600
Apr.	176,700	115,200	134,100
May	194,000	120,200	118,600
June	.....	132,200	122,000
July	.....	114,400	121,300
Aug.	.....	138,800	160,200
Sept.	.....	147,300	149,300
Oct.	.....	154,200	127,500
Nov.	.....	138,300	109,000
Dec.	.....	126,500	88,900

Gas Appliance Mfrs. Assoc. * Preliminary

Charts—Copyright, 1950, STEEL

loadings are reported by 10 out of 13 boards. In the week ended June 24 carloadings were at a 17-month high of 810,152 cars.

Manufacturers' Sales . . .

Manufacturers' sales and new orders in May increased substantially over April and were above the high averages attained earlier this year, says the Commerce Department. Inventory book values also increased during the month but the total was well below year ago levels. Manufacturers' sales totaled $19.4 billion in May, $2.3 billion over a year ago and a postwar high on a seasonally adjusted basis. Durables were up 18 per cent over the May, 1949, total and nondurables gained 10 per cent. Most of the new orders gain came in nondurable lines while durable goods were about the same as in April. Book values of inventories rose about $300 million in contrast to the usual May movement. About two-thirds of the rise was among the durable goods industries where inventories have been edging up since February.

Construction . . .

Engineering construction contracts totaled $287.6 million in the week ended June 29. This total was 32 per cent above the the weekly average to date this year and 59 per cent above the like week a year ago. Total volume for the 26 weeks in 1950 is above $5665 million and is 44 per cent higher than in 1949. Private construction is 71 per cent over 1949 and public construction is up 19 per cent.

Hold That Price Line

Buying conforms to production demands. No flurry of war scare protective ordering

INDUSTRY is trying to keep prices in line and not let them run away because of a war scare and fear of shortages that might result. There is no rush to stock up and create unnecessary shortages particularly in items that are already tight.

Take It Easy—Purchasing men are striving to keep prices in line by adding a clause to orders saying in effect that they assume prices quoted are firm prices and will not be affected by advances announced after the order date. Although this is a departure from normal practice many suppliers, upon being notified of the step, have said they are in sympathy with it and expect to keep prices in line for the next six months. Purchases are running ahead of a year ago but largely because business activity is higher than it was in the earlier period and not because of a war scare.

National Association of Purchasing Agents Survey Committee reports the predominant buying policy is being dictated by production schedules for purchased requirements. It is on the high side of 30 to 90 days with 8 per cent of firms surveyed exceeding this range by one to two months.

Pushing Up—Industrial prices advanced over a wide range in June, sparked by increases in copper, nickel and zinc. The stainless steel advance was expected for some time. Lead was the only nonferrous metal to show weakness during the month and that was toward its end. Steel scrap eased from earlier highs.

Moderate inventory increases were reported in June by one-third of purchasing agents surveyed. Larger production requirements naturally call for expanded protective stocks. Most P.A.s say they are increasing or maintaining satisfactory turnover rates. A few are running into difficulties because the short supply of a few essential materials is causing inventories to become unbalanced. Metal items listed as hard to get are: Copper, zinc, brass and steel.

Planning Pays Off

Resourcefulness in building design and in planning construction work enables Austin Co., Cleveland, to hold the line on costs despite continuing upward trend of material and equipment prices, labor and freight rates, says George A. Bryant, president. The company's quarterly index of in-

dustrial building costs remained at 161 per cent of the 1926 average in the second quarter. It was the fourth consecutive period in which the index was unchanged.

"We are using more and larger mechanized equipment and a steadily growing percentage of fabricated materials and factory-built equipment to obtain further utilization of manpower," he explains. "In some instances we are going so far as to design construction scaffolding and form work with a view to using these materials in the building itself."

GE Cancels Second Shift

General Electric Co. is no longer using a second turn at its home laundry division plant in Bridgeport, Conn. About 200 workers were affected by the layoff.

Maurice W. Reid, works manager, says the layoffs are due to the drop in washer sales that usually comes during the summer. During the last five years GE did not feel the summer decline because of a large backlog of orders.

Vacuum Sales Hit the Dust

Factory sales of standard-size household vacuum cleaners in May were down 4.8 per cent from the preceding month. They totaled 278,645, compared with 292,664 sold in April and 222,850 sold in May, 1949, says the Vacuum Cleaner Manufacturers' Association, Cleveland.

Radio Output Higher

Home radio receiver output increased in May but television production dropped slightly below the record levels of the preceding two months, reports the Radio Manufacturers Association. Radio production in May was 693,592 sets, compared with 648,352 in the preceding month. RMA member companies also produced 206,464 automobile radios during May.

TV set production in May amounted to 376,227, compared with 420,026 in April. The average weekly assembly rate was 10 per cent under the high April rate.

Industry Must Grow in West

A warning that West Coast industrialists must plan for increased production to absorb constantly rising population is voiced by William B. Tyler, president of the California Manufacturers Association.

He estimates the western population will increase by as much as 4 million persons in the next ten years. Mr. Tyler says "increased unemployment will be the result unless there is constructive economic planning by industry."

This problem is industry's responsibility, he continues. "Population growth does not automatically mean industrial growth. Manufacturing establishments must be built, trade and service establishments set up, markets found for products of the West."

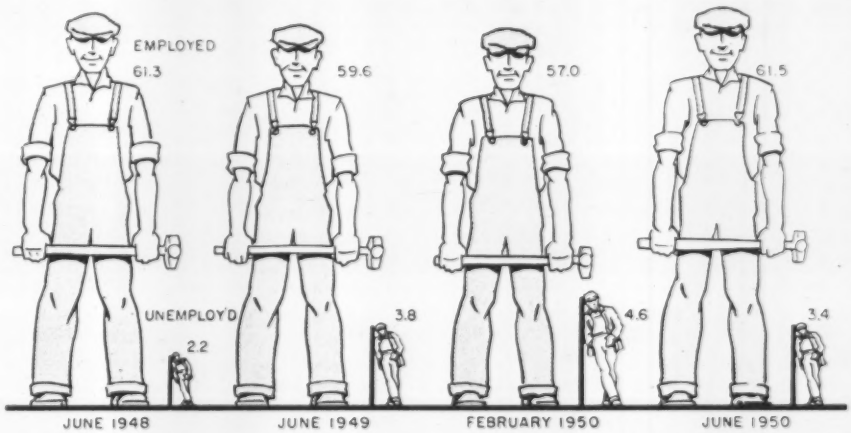
Mr. Tyler points out that producers and distributors in the Midwest, East and South have a geographical advantage over the Far West and says: "We must absorb freight in order to sell in those markets at the prices of our eastern competitors. Freight rates that discriminate against the West are running neck and neck with high taxes as the most harmful influence on western manufacturers."

Construction To Hit $26 Billion

Outlays for new construction this year are expected to reach nearly $26 billion. Commerce Department's Construction Division and the Bureau of Labor Statistics revised their estimates upward on the basis of record-breaking activity in the first half and indications the second half will see virtually no letup.

The $26 billion figure anticipated for 1950 is 14 per cent above the revised estimate for 1949. Expenditures for all types of new construction ran 17 per cent above the like year ago period in the first half this year. In the late fall and winter a seasonal downturn in construction activity is expected in contrast with the contra-seasonal increase in the closing months of last year.

Total U. S. Employment Going Up



Figures in millions of workers.

EMPLOYMENT near the record high set in the summer of 1948 is reported for June by the Commerce Department. Total civilian employment reached an estimated 61,482,000, about 1¾ million above May and 4.5 million above the low for the year established in February.

Part of the rise in employment was due to a seasonal increase in agricultural wage earners but the gain in nonagricultural workers was almost as large. About 750,000 persons were added to nonagricultural payrolls, bringing the total to 52,436,000 in June. Agricultural employment moved up to 9,046,000 from 8,062,000 a month earlier. The chart shows comparisons of total civilian employment and unemployment for June, like months in the last two years and February.

Youth Movement — Unemployment rose slightly in June after a steady decline since February. This increase was considerably less than the expected seasonal change and was due entirely to the entry of school-age persons into the job market. Some of them are seeking post-graduation jobs but most of them want temporary summer work. The influx at this time is too large to be absorbed in such a short period. Total unemployment was 3,384,000 in June, compared with 3,057,000 in May. February's high for the year of 4.5 million unemployed brought a flood of criticism on American industry.

Among adult workers there was a further reduction in unemployment, reflecting continued expansion in construction and factory employment. Commerce Department says it is also significant that the number out of work for four months or longer (estimated at 900,000 in June) dropped for the second consecutive month, following an almost unbroken rise since the beginning of 1949.

Men of Industry

LLOYD C. SMITH
. . . Heller Bros. V. P.-sales

JOHN F. LOTT
. . . Fort Duquesne general sales mgr.

WILLIAM A. MEITER
. . . central sales mgr., Worthington Pump

Lloyd C. Smith was appointed vice president in charge of sales, **Heller Bros. Co.**, with headquarters in the main offices at Newark, N. J. He was in charge of production in the company's factory at Newcomerstown, O.

Fred A. Kaufman was appointed general sales manager, **McKay Co.**, Pittsburgh. He succeeds **Fred C. Smith,** appointed special assistant to the president. For the last year and a half Mr. Kaufman has been sales manager of the company's arc welding electrode division, and will continue in charge of sales of these electrodes as well as of chain and chemical products. **E. H. McGraw,** New England sales representative for 15 years, was appointed eastern district sales manager, with headquarters in New York.

Hudson Phillips was appointed acting director of public relations for **Consolidated Vultee Aircraft Corp.**, San Diego, Calif.

Mead W. Batchelor, until recently executive vice president, Bridgeport Brass Co., has joined **Chase Brass & Copper Co.** He will be located in Cleveland as works manager of the two plants operated by Chase in that city.

Arthur W. Worthington retired as president and **Ralph E. Larry** as vice president, **Pittsburgh Limestone Corp.**, subsidiary, U. S. Steel Corp., Pittsburgh. **Irvin L. Clymer** succeeds to the presidency and will continue as president of Michigan Limestone & Chemical Co. and Bradley Transportation Co., also U. S. Steel subsidiaries.

John F. Lott was appointed general sales manager, **Fort Duquesne Steel Co.**, Pittsburgh, to succeed **Charles Schramm,** retired. Mr. Lott was associated with Tin Mill Products Corp., predecessor to Fort Duquesne, from 1940 to 1941, when he entered the Army Air Forces. He rejoined the company in 1945 as assistant sales manager.

Ferdinand M. Brown has returned to Willys-Overland Motors Inc., Toledo, O., after an absence of 17 years to become a special assistant to **William S. Venn,** general sales manager. For some time Mr. Brown was manager of government sales division, Packard Motor Car Co., in Washington.

John L. Busey was elected a vice president, **General Electric Co.**, Schenectady, N. Y., and placed in charge of marketing policy, a newly created post. He was president and a director of General Electric Supply Co. Concurrently, **William V. O'Brien,** formerly general sales manager, apparatus department of GE, was elected a commercial vice president and appointed assistant manager of marketing policy. **Charles R. Pritchard,** formerly manager of marketing, appliance and merchandise department, was elected president and a director, GE Supply Corp. Mr. Busey and Mr. O'Brien will have headquarters in New York and Mr. Pritchard in Bridgeport, Conn.

General Refractories Co., Philadelphia, appointed **Harry T. Graham** as general sales manager. **S. S. Furst,** formerly general sales manager, was appointed assistant to the vice president in charge of sales.

William A. Meiter, manager, Buffalo district office, **Worthington Pump & Machinery Corp.**, was appointed to the newly created position of central sales manager, Detroit. **John W. Stovall** was named to succeed Mr. Meiter at Buffalo. Mr. Meiter will direct sales of Buffalo, Detroit, Cleveland, Cincinnati and Pittsburgh offices. **Thomas F. Quinlan** was appointed works comptroller, Harrison, N. J., Works, to succeed the late **Wilbur H. Stacy.**

David T. Woodhouse was appointed manager of product development and methods, **Cleveland Chain & Mfg. Co.**, Cleveland. He formerly was with Woodhouse Chain Works, Trenton, N. J.

Midvale Co., Philadelphia, appointed **M. Worth Acker** as chief engineer. Formerly chief metallurgical engineer, he is now in charge of all engineering. **Edward L. Murphy,** formerly assistant engineer of tests, was appointed engineer of tests.

Stolper Steel Products Corp., Milwaukee, elected **O. H. Kessler Jr.** vice president in charge of finances in addition to his position as secretary and controller. **Arthur A. Ladwig,** factory manager, continues in that capacity as vice president in charge of manufacturing. **H. C. Chapman** continues as sales manager and was elected treasurer.

Charles J. Ramsburg Jr. was appointed manager of sales, welded products, for **Spang-Chalfant Division,** National Supply Co., Pittsburgh. He has been Pittsburgh district manager for the division since January, and before that was assistant district

TINNERMAN

Speed Nut
SAVINGS STORIES

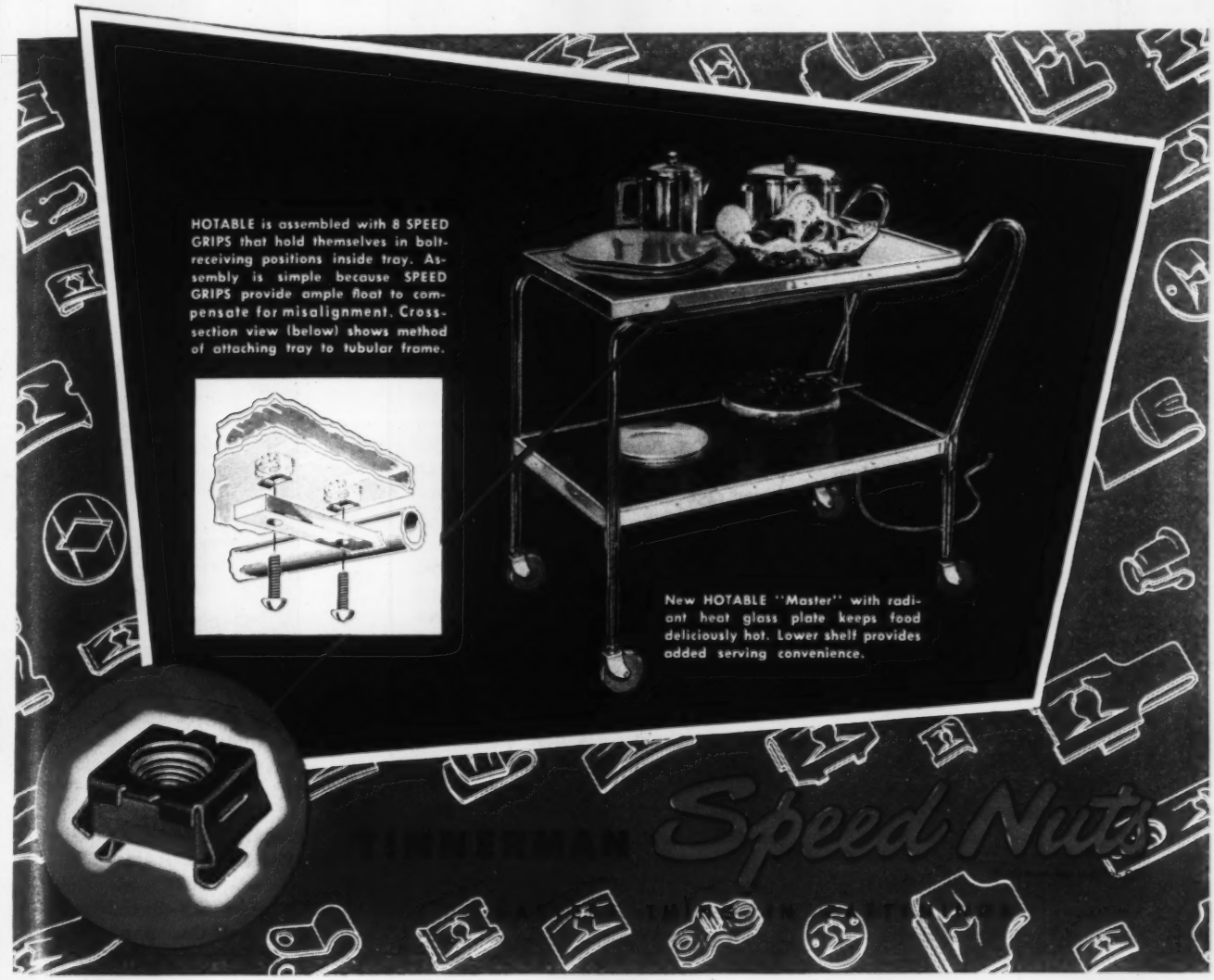
Easy-to-assemble HOTABLE Gets *warm* Reception by Dealers . . . Makes *cool* Savings for Manufacturer!

"Dealer good will stepped up . . . orders increased . . . assembly savings approaching the spectacular!" These are the benefits provided by SPEED GRIPS; according to Mr. L. L. Salton, Vice President and General Manager of Salton Manufacturing Co., Inc., New York, N. Y.

Here's what happened when Salton Manufacturing replaced 8 weld nuts with 8 SPEED GRIP Nut Retainers on their Hotable serving wagons:

- Tables can now be shipped "knocked down" for easy assembly by dealer.
- Securely attached nut reduces dealer rejects.
- More compact carton reduces manufacturer shipping and packaging costs—saves dealer storage space, permits placing of larger orders.
- Permitted transfer of $1200 worth of welding equipment to other jobs.
- And—*provided 80% savings in assembly cost!*

Yes, SPEED GRIPS are accelerating the trend toward to-be-assembled furniture and thousands of other products. Find out more about the cost-saving powers of this and other SPEED NUT brand fasteners. Also write for interesting, helpful SPEED NUT "Savings Stories" booklet. TINNERMAN PRODUCTS, INC., Cleveland, Ohio. In Canada: Dominion Fasteners Ltd., Hamilton. In Great Britain: Simmonds Aerocessories, Ltd., Treforest, Wales.


HOTABLE is assembled with 8 SPEED GRIPS that hold themselves in bolt-receiving positions inside tray. Assembly is simple because SPEED GRIPS provide ample float to compensate for misalignment. Cross-section view (below) shows method of attaching tray to tubular frame.
New HOTABLE "Master" with radiant heat glass plate keeps food deliciously hot. Lower shelf provides added serving convenience.
Speed Nuts

manager, New York. Mr. Ramsburg succeeds **H. G. Morrow,** resigned.

George L. Stewart was appointed manager of the Hammond, Ind., plant

GEORGE L. STEWART
. . . Holliday plant manager

of **W. J. Holliday & Co. Inc.,** Indianapolis. He succeeds **C. O. Bucksot,** who is assuming a position at the Indianapolis plant. Before joining Holliday Mr. Stewart was associated with Edgar T. Ward's Sons Co., then a division of Columbia Steel & Shafting Co., Pittsburgh.

Wade N. Harris was appointed vice president, **Murray Corp. of America,** Detroit. He joined the organization in 1948 as manager, body division, and was promoted to automotive operations manager the following year.

John F. Frost Jr. was appointed southeastern district sales manager, **C. G. Hussey & Co.,** with offices in Norfolk, Va. He has been engaged in the sale of nonferrous materials for a number of years in the Norfolk locality.

C. D. Rudolph was elected president and continues as treasurer of **Timm Aircraft Corp.,** Van Nuys, Calif., and **Timm Industries Inc.,** Los Angeles. He succeeds **O. W. Timm** as president. Mr. Timm is now chairman of the board. Other officers elected are **R. V. Pepe,** vice president, and **M. S. Davis,** secretary.

Ray Connors was appointed publicity manager, **Lockheed Aircraft Corp.,** Burbank, Calif. He succeeds **John L. Tower,** resigned to become director of public relations for International Paper Co.

A. Pope Lancaster, industrial relations manager at **Western Electric Co.'s** Hawthorne Works, was made works manager of the company's Point Breeze Works in Baltimore. **G. S. Hemsted** succeeds Mr. Lancaster in his former post.

Charles J. McWhinnie was placed in charge of the newly opened Denver sales office of **Chase Brass & Copper Co. Inc.** He will be assisted by **John M. Ceranich.**

John F. Meyers was elected president, **Westinghouse Electric Supply Co.,** New York, subsidiary, Westinghouse Electric Corp. He succeeds **David M. Salsbury,** who asked to be relieved of his position to return to the West Coast for the sake of health of his family. Effective July 1 he became vice president in charge of Texas and Pacific Coast operations of the supply company, with headquarters in San Francisco.

Nicholas Kelley Jr. was elected secretary, **Chrysler Corp.,** Detroit, succeeding **R. P. Fohey,** who was given an extended leave of absence due to poor health. In addition to his new post Mr. Kelley will continue to supervise the work of the resident legal department, where he has been active since 1935.

NICHOLAS KELLEY JR.
. . . secretary, Chrysler Corp.

Frank Watt was appointed general sales manager, metal finishing equipment and supplies division, **Frederic B. Stevens Inc.,** Detroit plating and foundry supply manufacturer.

John Hihn Jr. was appointed comptroller of **Budd Co.'s** new auto body components plant at Gary, Ind.

General Motors Corp., **Chevrolet Motor Division,** Detroit, appointed **W. B. M. Brownlie** manager of the Tarrytown, N. Y., assembly plant succeeding **M. W. Howe,** retired. **L. C. Fitzgerald** succeeds Mr. Brownlie as manager, Baltimore plant; **F. J. Fessenden** succeeds Mr. Fitzgerald as manager, Los Angeles plant; **L. J. Rausch** succeeds Mr. Fessenden as plant superintendent, Baltimore; and **J. A. O'Kroy** was promoted from superintendent of inspection, gear and axle plant, Detroit, to the central office staff.

A. James Leone, chairman of the Boston Chapter, American Society of Tool Engineers, Detroit, was elected to the executive board of the **Engineering Societies of New England Inc.** Mr. Leone is chief engineer and assistant plant superintendent, Chelsea Clock Co., Chelsea, Mass.

S. S. Cort, manager, sheet and tin plate sales, **Bethlehem Pacific Coast Steel Corp.,** San Francisco, was appointed assistant general manager of sales. He will continue to direct sales of sheet and tin plate.

Kaiser Steel Corp., Fontana, Calif., appointed **James P. Williams** division manager, engineering and planning. Formerly chief industrial engineer, he is succeeded by **Bruce Claflin,** assistant chief industrial engineer. **Robert T. Richmond** and **Ralph L. Vaughn** were appointed divisional industrial engineers.

Stephen B. Randolph was appointed eastern representative for **Northwest Chemical Co.,** Detroit. He is located in New York.

L. A. Dixon Jr. was appointed assistant vice president, meter and valve division, **Rockwell Mfg. Co.,** Pittsburgh. For the last two years he

L. A. DIXON Jr.
. . . asst. V. P., Rockwell Mfg. division

was general manager, Pittsburgh-DuBois Division of Rockwell.

John E. Barber was elected treasurer, **Columbia Steel Co.,** San Francisco, subsidiary, U. S. Steel Corp., succeed-

J. B. WARD
. . . *Addressograph-Multigraph V. P.-gen. mgr.*

PAUL H. DAVEY Jr.
. . . *V. P. of production, Davey Compressor*

JACK C. SCHUBERT
. . . *Graphitar engineer, U. S. Graphite*

ing **E. H. Daniel,** retiring after 21 years with the company.

J. B. Ward was elected vice president and general manager, **Addressograph-Multigraph Corp.,** Cleveland. He has been with the company 38 years, and in 1944 was made vice president in charge of the company's domestic distribution.

Manuel Alonso was appointed manager of foreign sales, **American Locomotive Co.,** New York. He succeeds **Alexander M. Hamilton,** vice president-foreign sales, who is retired. Mr. Hamilton also retired as president of American Locomotive Export Co. and of Steam Locomotive Export Association Inc.

Peabody Engineering Corp., New York, appointed **Allen H. Jones** manager of its newly opened Chicago office.

Lawson Adams was named executive vice president, **Wrought Washer Mfg. Co.,** Milwaukee. **Walter Borges** was named vice president in charge of sales.

Paul H. Davey Jr. was elected vice president in charge of production, **Davey Compressor Co.,** Kent, O. He has been production manager of the Davey plant for the last two **years.**

Louis E. Theisen was appointed vice president in charge of engineering, **Metal Products Corp.,** Weehawken, N. J.

Frank J. Meyer was appointed district manager of sales, Pittsburgh, **Lukens Steel Co.** He succeeds **W. Harrison Lackey,** who returns to the home office in Coatesville, Pa., on a new assignment. Mr. Meyer is succeeded as senior salesman in the Philadelphia office by **Charles A. Rea,** transferred from the Coatesville district sales office.

W. S. O'Connor was appointed distribution manager, **National Super Service Co. Inc.,** Toledo, O. He formerly was general sales manager, Standard Tool Co., Cleveland.

W. J. Goerisch was appointed manager, power apparatus sales, **Graybar Electric Co.,** New York.

Jack C. Schubert was appointed Graphitar engineer for **United States Graphite Co.,** Saginaw, Mich. Graphitar is the company's carbon-graphite product.

Management personnel changes in the pressed steel division, **Republic Steel Corp.,** Cleveland, include: **Oscar S. Swanson,** superintendent, Cleveland plant, Truscon Steel Co., named works manager, Niles Steel Products Division, Niles, O., and succeeded at Cleveland by **Frank F. Malcher. J. Carl Reik** succeeds Mr. Malcher as works accountant for the entire pressed steel division.

Charles T. Button was appointed director of sales, **Holtzer-Cabot Division,** Boston, National Pneumatic Co. Inc. Formerly with the division for 18 years as assistant sales manager, electric motor division, Mr. Button has been with Howell Electric Motors Co., Howell, Mich., where he was vice president in charge of sales. Mr. Button also served for three years as sales manager, electrical controls division, Master Electric Co., Dayton, O.

OBITUARIES . . .

William C. Whyte, 62, vice president, Electro Alloys Division, **American Brake Shoe Co.,** Elyria, O., died June 23. In 1913 he founded Steel Improvement Co. of Cleveland.

Wilbur H. Stacy, comptroller, Harrison Works, **Worthington Pump & Machinery Corp.,** Harrison, N. J., died June 23 after a long illness.

Gaston Marque, 43, director of public relations, **Studebaker Corp.,** South Bend, Ind., died June 26 aboard a train enroute from Chicago to New York. He joined Studebaker in 1941. Mr. Marque was adviser to Paul Hoffman, also an executive of the firm, when Mr. Hoffman set up the Economic Cooperation Administration.

Henry F. Marquardt, 62, superintendent of rolling at **Republic Steel Co.** in Buffalo, died June 24.

John F. Donovan, 71, president, **Donovan Iron & Supply Co.,** St. Louis, died June 26.

Gustav H. Zimmer, 68, formerly chief engineer, machine tool division, **Buffalo Forge Co.,** Buffalo, died June 29 after an illness of several months.

Harold G. Alexander, 67, retired president, **National Screw & Mfg. Co.,** Cleveland, died June 28. He had been retired since 1940.

W. Birt Boom, 73, since 1916 president and general manager, **Boom Boiler & Welding Co.,** Cleveland, died July 2.

Andrew J. Miller, 55, for the last two years superintendent, **Variety Machine & Stamping Co.,** Cleveland, died July 2.

Harry W. Mitchell, 66, president, **Mitchell Metal Products Inc.,** Cleveland, died June 24 in Greenwich, Conn.

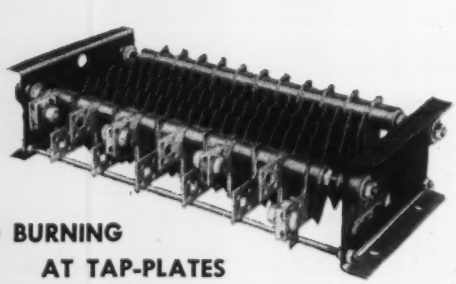
SAVE UP TO 1/6 ON UP-KEEP

Periodic Tightening of Clamping Nuts Eliminated—With EC&M Tab-Weld Plate Resistors

1. INSPECT MOTOR
2. CHECK CONTROL PANEL
3. ADJUST BRAKE
4. TEST LIMIT STOP
5. EXAMINE MASTER SWITCH
6. TIGHTEN ~~RESISTOR~~ NUTS

TRADE MARK
EC&M TAB WELD PLATE RESISTOR

NO BURNING AT GRID-EYES



NO BURNING AT TAP-PLATES

EC&M TAB-WELD Plate Resistors provide the opportunity to reduce upkeep by a new construction which has shown excellent operating results.

This construction brings grid-eyes into intimate contact, eliminating the electrical connectors previously required between grids. Spot welding the tab-ends of the grids maintains the intimate contact and provides a continuous path without depending on the pressure of the end clamping nuts. Burning at tap-plates is also eliminated by spot welding the tap-plates to the ends of the mated grids.

In addition to elimination of trouble in concealed areas of the sections, EC&M TAB-WELD Plate Resistors have other cost-saving features. These are: stabilized resistance value, simplified tap-shifting with several tap-plates permitting convenient adjustment for best motor operation, metal tap-plate identification tags, corrosion-resisting qualities, etc. *Write for Bulletin 942 giving complete details.*

A reduction in preventive maintenance is a plus value—specify EC&M TAB-WELD Plate Resistors.

THE ELECTRIC CONTROLLER & MFG. CO.
2698 EAST 79TH STREET • CLEVELAND 4, OHIO

Production AND Engineering
NEWS AT A GLANCE

COSTS DROPPED $36 A DAY— Electronic induction heaters for brazing pay off in a big way for Hunter Spring Co., Lansdale, Pa. The company, which employs the units to join beater-blade assemblies for GE's portable household mixers, is realizing production savings of one cent per unit or about $36 per day. Heating cycle for the brazing operation on six beaters at a time is 11 seconds for the blade-stem joints, a quarter-second delay and 12 seconds for brazing guards to the stems. Hunter brazes an average of 1800 beater blades per eight-hour shift, or 225 per hour. With a 16-hour day, total production for a five-and-a-half-day week is 20,000 beater blades.

ONE FOR THE RECORD— A hole half the diameter of a human hair, measuring about 60/100,000ths of an inch was drilled in metal by a technician at the Naval Ordnance Laboratory, White Oak, Md. Made in a piece of platinum for the hydraulic system of one of the Navy's new weapons, the hole may be the smallest ever drilled in metal in this country. According to the Department of Defense, the drill was made on a jeweler's lathe, but an ohmeter was necessary to indicate the drill contact.

WATCH PENETRATION IN HARD FACING— Don't get too much penetration when applying hard facing materials is the caution advanced by Haynes Stellite Division in its manual on hard facing alloys. The Kokomo, Ind., company says the important thing to remember in the operation is one of applying a new surface. In hard facing, only the surface of the metal part is brought to melting temperature. Then the hard-facing rod is melted and spread over the base metal surface. The latter bonds with the surface only and remains there as the new surface. If you let the alloy mix with the base metal through too much penetration, properties of both the coating and base metal will be changed. This will cause a soft surface and a brittle base metal, thereby defeating your purpose.

STATISTICAL METHODS A PSYCHOLOGICAL TOOL— Statistical methods of inspection are looked upon as a psychological tool by the Fort Wayne Works of International Harvester Co. Use of statistical control charts at each operation in the plant, says H. A. Weissbrodt, works manager, re-established interest of both inspectors and production workers in the quality of their products. He told members of ASM's Saginaw Valley chapter that quality control is 85 per cent psychological and 5 per cent statistical. He pointed out gains in Harvester's forge shop where yield of good forgings increased 6 per cent per pound of steel after quality control methods were adopted.

COMPETITIVE OPERATION—Camin Laboratories of Brooklyn, N. Y., through improved techniques and faster production rates is now producing nickel articles in quantity production by the electroforming process. Up to recent years, the method was used only on intricate, small-lot jobs where cost was not a factor. But late innovations and faster production rates now make the process competitive with all but the very simplest forming operations. Its major economic advantages occur with irregular patterns which ordinarily require a series of drawing or extruding operations with annealing between each step.

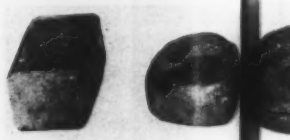
SALTING AIDS MACHINING — By using a new technique of salt bath annealing rear axle ring gears and other auto parts after press forming Ford Motor eliminates need of shot cleaning and relapping. The method also serves to improve machinability to the extent that cutter life is improved by some 75 per cent. Economies realized at the company's Canton, O., plant stem from years of experimental work inspired by the late R. H. McCarroll. (p. 84)

PUSHUP DOES IT—Flash removal can be a serious and costly problem when finishing off a butt weld. But a technique developed at Reynolds Metals opens up many applications for aluminum previously considered impractical or economically impossible. So far it provides good results in that the flashed metal fin is so thin it can be removed quickly with a pair of pliers. Most of the advantages are derived from a speedy, powerful pushup which resembles a hammer blow, and the use of die clamps which practically pinch off the flesh during the pushup. (p. 86)

ONE WAY "TRAFFIC"—Faster order processing and improved customer deliveries result from one way material movements in U. S. Steel Supply Co.'s new Cleveland warehouse. Referred to as an "ideal" warehouse, the facility is scientifically laid out to stock and handle largest steel sections rolled today. Many modern handling aids are employed to keep materials moving—always in one direction—either for storage, processing or delivery. (p. 90)

BETTER QUALITY—Two features play important roles in the new Fretz-Moon tube mill recently completed at the Benwood, W. Va., works of Wheeling Steel Corp. They are directly responsible for the uniformly higher quality, greater pipe size accuracy and cleanliness of product. One is an adjustable "flying saw" mechanism capable of cutting finished pipe in any desired length at higher speeds—with an accuracy of plus or minus 0.50-inch. The other is a synchronized, all-electric motor drive for powering the integrated forming and welding stands to accommodate a wide range of speeds and pipe sizes. (p. 96)

Isothermal Annealing Improves Forging



By salt bath annealing ring gears and other automobile parts after press forming, Ford eliminates shot cleaning, lengthens cutter life up to 75 per cent and cuts need for relapping

ELIMINATION of shot cleaning after forging, superior machinability resulting in improvements up to 75 per cent in cutter life, considerable savings by decreasing need for relapping because of distortion after carburizing are some of the attractive advantages of press forging followed by isothermal or salt bath annealing at the Canton, O., plant of Ford Motor Co.

Practical realization of these economies was preceded by years of experimental work at Ford's Rouge plant where literally a multitude of forgings were processed and machined experimentally.

The work started under the inspiration and supervision of the late R. H. McCarroll, long in charge of Ford metallurgical activities, to whom most of the credit for the eventual success of the method must be given.

Many Gears Processed—Parts being processed by the new technique include rear axle ring gears and pinion gears, differential side gears, cluster gears and transmission low and reverse gears. Steels used are mostly AISI type A8620, with some 5135, 4028 and 4120. Because of a too lengthy transformation cycle 4620 has not been favored.

In general the forging cycle involves heating by induction to the range 2150-2250° F, the heat varying according to size and shape of part; performing the necessary press operations which usually require multiple-stage dies; transferring for 25-35 minutes to mechanized salt baths maintained at 1250° F and finally dipping in water to clean off the salt.

As far as possible conveyorization is practiced to handle heated blanks from the induction units to the presses (usually simple chutes), from presses to salt baths, through the salt and into the final wash.

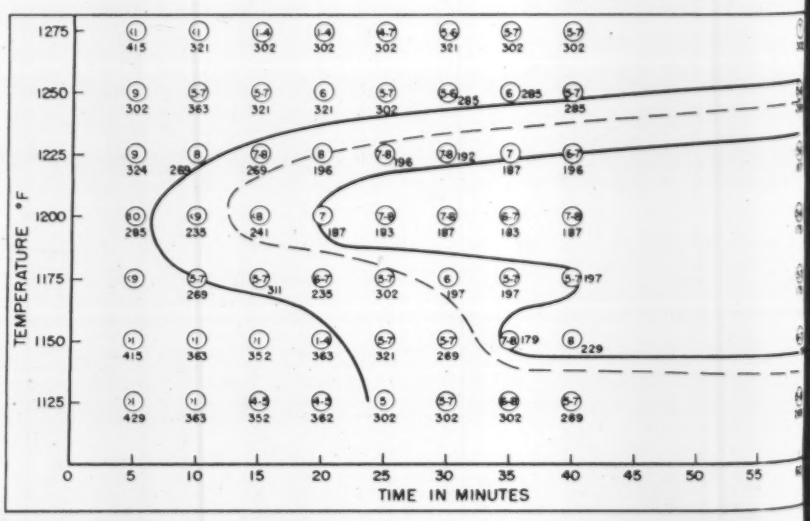
Forged Then "Salted" — Eighteen salt bath units of three different makes are installed at the plant. Salt is of the neutral type, a mixture of barium chloride, sodium chloride and potassium chloride. Since parts enter the salt immediately after the forging operation they carry sufficient residual heat to help maintain minimum heating requirements.

Radiation losses in the salt bath are on the high side, so the parts must be handled through the upsetting operations without delay if extraneous heating of the salt baths is to be avoided. Dragout of salt is exceptionally low, being estimated at no more than 0.0005-cent per part at the most.

Adaptable for Fast Work—Ford engineers emphasize that the process as conceived is adaptable exclusively to high-production operations where thorough synchronization and conveyorization are possible. Care must be taken to avoid pressing scale into the parts during the upsetting operations. Loose scale is of no consequence, but pressed-in scale must be avoided if the savings resulting from elimination of shot cleaning are to be realized.

Accompanying illustrations show several views of processing a ring gear. The rectangular blanks are loaded in a chute from which they slide onto a conveyor and move through induction heating furnace.

Discharge end of the latter is convenient to the operator who loads the heated blank into a three-stage press.

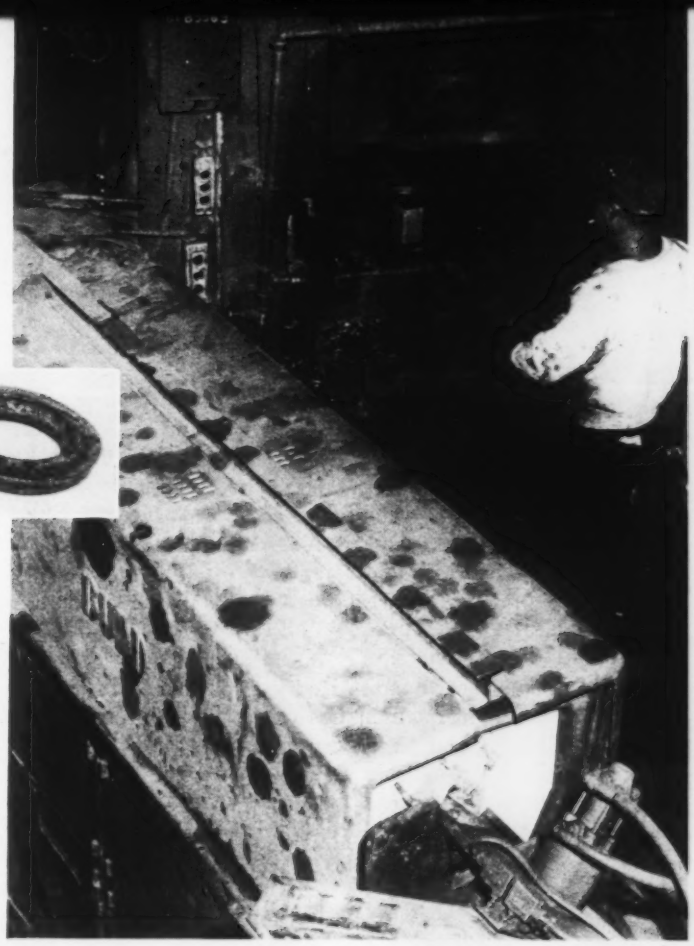


Forge annealing TTT curve, NE8620, pinion gear. Hardness values were taken from gear blanks. Numbers in circles refer to ferritic grain size. Other numbers to Brinell hardness

By A. H. ALLEN
Detroit Editor, STEEL

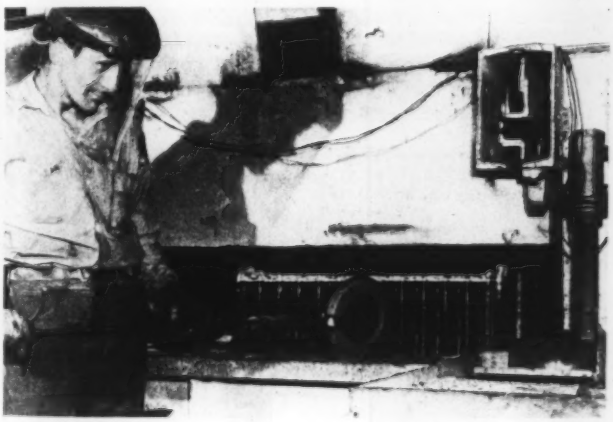
Machinability

Above—Various stages in the manufacture of a ring gear. First four operations are performed on one press, last two on a second press

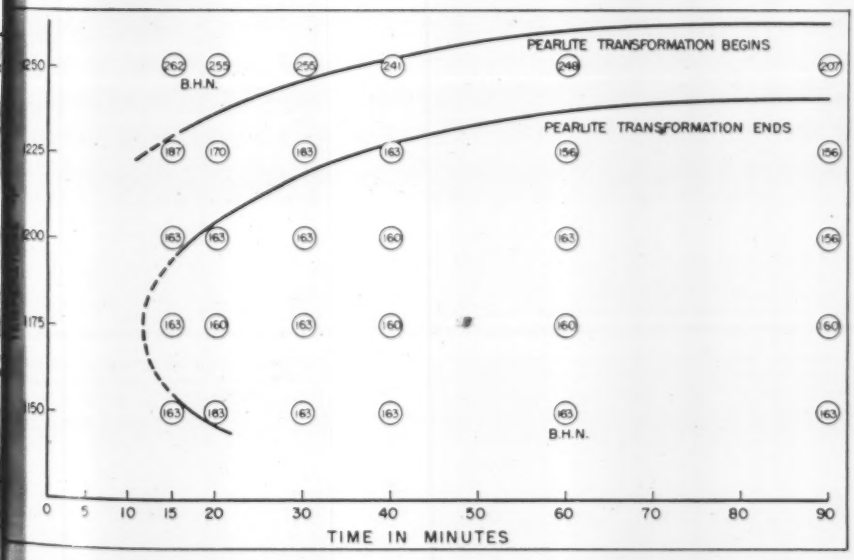


Above—Processing billets through a heavy press equipped with a three-stage ring gear die. Metal billets are automatically heated in the long induction heater in the foreground

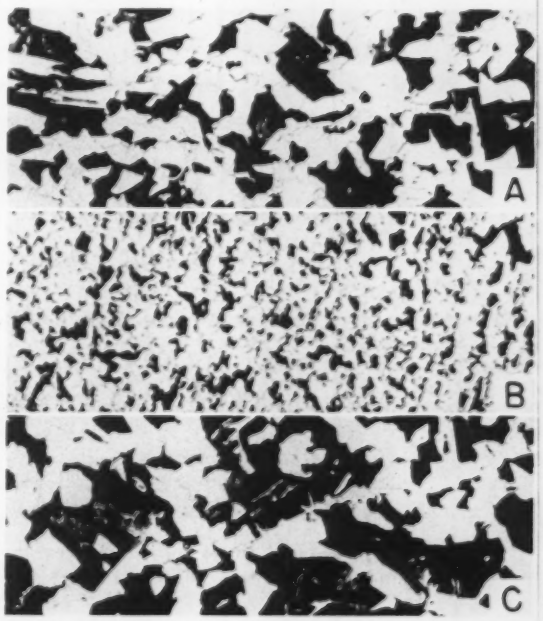
Below—Gears are salt bath annealed. After annealing, they are automatically dumped into a container and shipped to Rouge plant for machining



Below—Photomicrographs of SAE 8620 steel, X100. (A) Salt bath annealed at 1190°F, direct from forging. (B) Cooled to room temperature from forge; reheated to 1650°F, then salt bath annealed at 1190°F. (C) Cooled to room temperature from forge; reheated at 2150°F then salt annealed at 1190°F



TTT curves of SAE 4028 steel. Samples were austenitized at 1750°F. Sample size: 1.5-inch diameter by 0.375-inch



Advanced flash welding technique described here opens applications for aluminum previously considered impractical or economically impossible because of high fabrication costs

WELD

FLASH removal can be a serious and costly problem when finishing off a butt weld. The difficulty of removing flash depends primarily upon two factors: Amount of flash, and its accessibility. Flash removal is relatively simple when the periphery of the weld cross section is some simple geometrical shape, such as a rectangle, when flash butt welding rectangular bar, because all exterior surfaces are readily accessible.

Butt joints in complicated sections such as the one shown in Fig. 1 which possesses interior surfaces at 1, 5, 6, 7, 11 and 12, offer much more difficulty when it comes to removing flash. However, if a cutting tool shaped to fit (say surfaces 5, 6 and 7) is used on such an irregular cross section, flash can be removed without too much difficulty, providing the two pieces joined by the butt weld are in line. But suppose the weld is a miter joint where the two pieces make a 90-degree angle with each other as in manufacture of window frames, screens, storm doors, storm windows, etc. Then such a cutting tool cannot be passed across interior surfaces and the problem of flash removal is greatly accentuated.

Flash Practically Eliminated—In such joints, it is not possible to improve the accessibility. So the only recourse is to reduce the amount of flash. This article describes a development which solves this problem by practically eliminating flash.

Work was done on flash welding miter joints in the extruded aluminum section shown in Fig. 1. Note

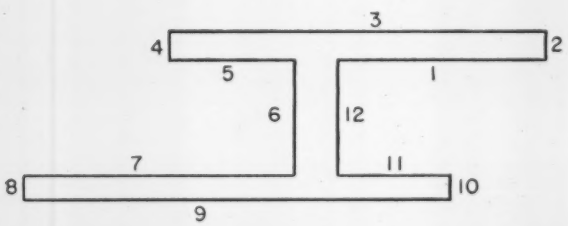


Fig. 1—Cross section of extruded aluminum member showing surfaces to be finished after welding

Fig. 2—First stage represents usual commercial practice. Upset metal extends ¼-inch across weld zone

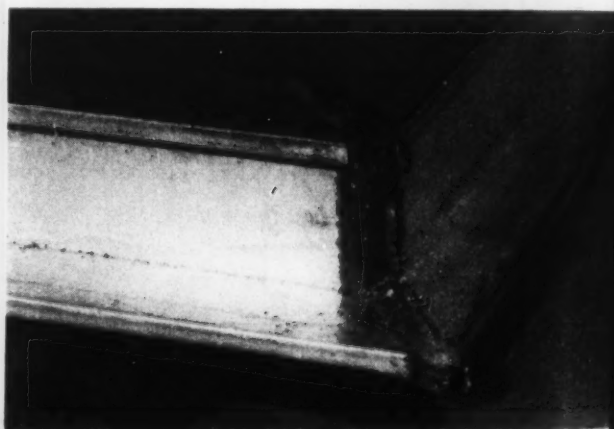


Fig. 4—Next stage represents considerable improvement. Dies are cut back to permit closer grip on work, "pinching" off flash

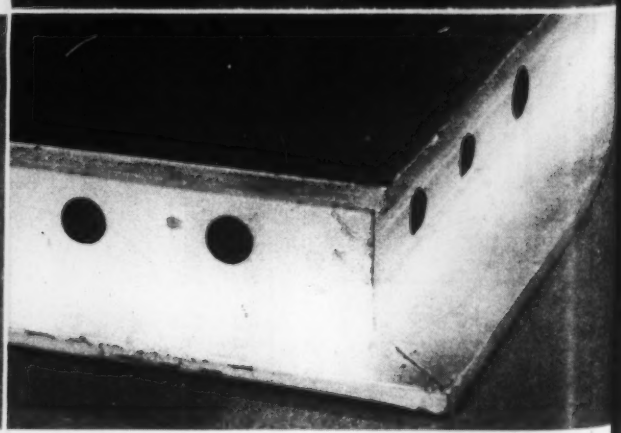


Fig. 5—The weld zone is reduced to a mere line. Note that there is no upset metal and practically no flash

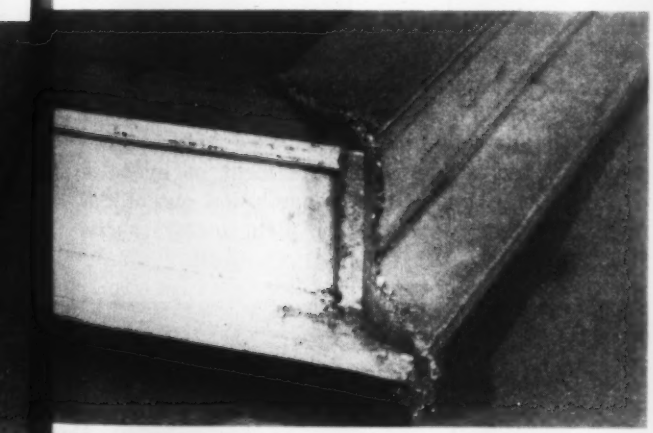
By CHARLES BRUNO
and
G. W. BIRDSALL
Reynolds Metals Co.
Louisville

WITHOUT FLASH

that there are actually 12 different surfaces at each joint to be cleaned if all flash is to be removed. Flash removal on such a part could easily become so expensive as to greatly increase the finished cost of the fabricated part, well illustrating the importance of developing some means of reducing this flash.

Figs. 2, 3, 4 and 5 show successive stages in work on eliminating flash. In Fig. 2, note that upset metal extends for about ¼-inch across the weld zone, creating a tremendous amount of work in finishing off the welded joint, especially on the interior surfaces. Fig. 3 shows results of first attempts to reduce flash. Note the amount of metal upset alongside the weld is considerably smaller, although the weld zone itself is still quite wide and much flash has been produced. In Fig. 4, great improvement is evident—smaller weld zone, less upset, reduced flash.

Fig. 3—First attempt to reduce upset and flash by setting dies closer together



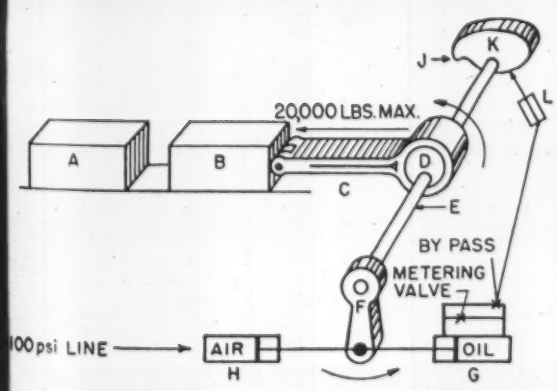


Fig. 6—Simplified diagram showing operation principle of new type flash welder with high-speed pushup. Text explains operation

Dies Relieved—Here the dies (which tended to compress the flash in Fig. 3) have been relieved by cutting them back at about 60 degrees, permitting a closer grip on the work and the exertion of a "pinching" action to pinch off the flash. In Fig. 5, this work has been carried to an amazing conclusion. The weld zone has been reduced so much that no metal at all is upset alongside of it. The flash has been practically cut off at the surface of the weld by the close pinching action of the dies.

What little flashed metal remains is easily knocked off with a pair of pliers. There remains practically no work to be done in finishing this weld. It is easy to see how this weld greatly reduces weld finishing costs.

Unconventional Thinking—Success of this project can be attributed largely to a little unconventional thinking on the problem. Why should we tolerate a wide weld zone and large amount of flash? Precision controls now available on latest type flash welders largely do away with inconsistent results formerly obtained. Extensive flashing periods and comparatively slow pushups with weld current remaining "on" during pushup are no longer required to compensate for control inconsistencies.

Why not reduce flashing period to the very minimum to heat the metal to fusion, and reduce the pushup to a hammer blow to obtain the advantages of percussive welding, cutting off the welding current at the instant of the hammer blow?

Work along these lines is responsible for the excellent results shown in Fig. 5 where flashed metal fin is so thin it can be removed completely and quickly with a pair of pliers as shown. Note that weld zone has been reduced to only a few thousandths of an inch (0.006-0.010-inch).

Pushup Like Hammer Blow—Most of these advantages are attributed directly to the speedy, powerful pushup employed as this is so fast it resembles a hammer blow. It forces out of the weld most of the molten metal; leaves only an extremely thin sheet. This in turn tends to thin out the flashed metal as it leaves the weld.

Most important feature is that the dies were clamped closer and closer to the weld in Figs. 2-5. Clamps were "relieved" at tips by grinding them back to give about a 60-degree opening.

Also they were set as close to the weld as possible, only a small fraction of an inch apart. This means they practically "pinch" off the flash during the fast pushup. Using die (*Please turn to Page* 102)

New Transfer Line Machines 72 Transmission Cases an Hour

Fifteen major machine tools operated by eight men meet cost demands of today's high volume automotive requirements in finishing main cases for Studebaker drive at Borg-Warner's Detroit Gear Division

By A. H. ALLEN
Detroit Editor, STEEL

COMBINATION of exceptional dimensional precision and the absolute minimum manufacturing costs in the production of elements for automatic transmissions for passenger cars has resulted in the development of many new types of machine tool equipment of the multiple-operation type, requiring insignificant operator attention or manual handling of parts.

Thus, in producing main cases for the Studebaker automatic drive, requiring careful attention to tolerances on milled faces and drilled and tapped holes, both straight and angular, the Detroit Gear Division of Borg-Warner Corp. enlisted the best brains of the machine-building industry for the equipment setup.

Result is that cases are now being machined, bored and drilled at a rate of 72 an hour, using 15 major machine tool units operated by eight men.

The case is a gray iron casting, 9 inches wide, 9½ inches deep, 10 inches long and roughly cylindrical in shape except for a flat bottom face to which the valve body is attached, and bosses on the two sides on which are mounted actuating cylinders and other control elements. Accompanying illustrations show the cases from various angles.

Tracing through the sequence of machining operations, the first step is to mill the bottom face on an eight-station Davis & Thompson rotary milling machine. Dimensional limit of 8.901-8.911 inches from pads cast on the top of the case must be held in this operation. Milling cutters have tungsten carbide inserts.

The pieces then move by gravity down a roller conveyor to a Baush two-way horizontal drilling machine or trunnion mill shown in Fig. 1, which has five operating stations plus one for loading and unloading. Spindles move in from both sides, drilling, reaming, countersinking and spotfacing holes in both bottom and top faces, except for angular holes in the bottom face. There are approximately 30 holes drilled in the bottom face alone. Two holes in the top face are for subsequent attachment of eyebolts to permit easy lifting of the transmission out of the automobile for service. It is the plan to have suffi-

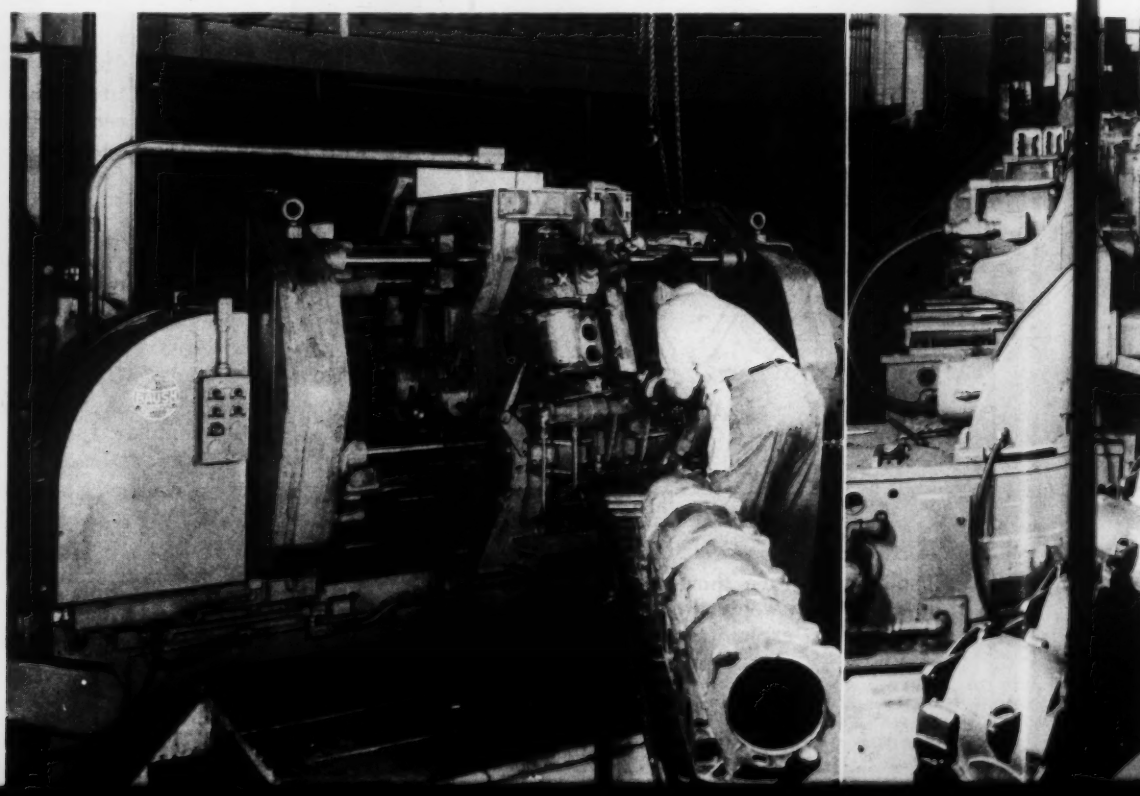


Fig. 1 — This two-way Baush horizontal drilling machine, with transmission cases clamped in the trunnion fixture as shown, indexes through five work stations. Approximately 30 holes are drilled in the bottom face alone

cient length of conveyor between the milling and drilling unit, and following the drilling machine, so that a float of perhaps 100 cases can be maintained and any interruption to either machine for service would not stall the rest of the line.

Next step is to mill front and rear faces, or the two end faces as they are called. This is done in an eight-station Davis & Thompson rotary or straddle milling machine, the parts being located by two dowel holes and against the finished bottom face. As the work-holding fixture indexes around, the two faces are rough and semifinish milled, overall length being held in the range 10.032-10.037 inches.

Another similar Davis & Thompson straddle mill receives the cases for milling the two side faces, the reverse cylinder housing face, and the lockup and forward cylinder face. Overall width is held within 8.995-9.005 inches. This is also an eight-station indexing type machine.

Moving along roller conveyor, the cases travel to the Baush drilling line, comprising two fully automatic transfer-type two-way horizontal drilling machines, the first comprising three units, the second five units, each unit having multiple spindles moving in from both sides. The first three units drill, countersink, bore, chamfer, spotface and tap all holes in front and rear faces. The first station has one boring bar and 13 drill and tap spindles; the second station 28 drill and tap spindles, the third 14 drill and tap spindles.

Each group of spindles is mounted in a head which is moved hydraulically, rapid transversing to the work, then feeding in at a slower speed and rapid traversing to retract. The cases are moved along the conveyor through the drilling stations, synchronized with the cycle of the (*Please turn to Page* 104)

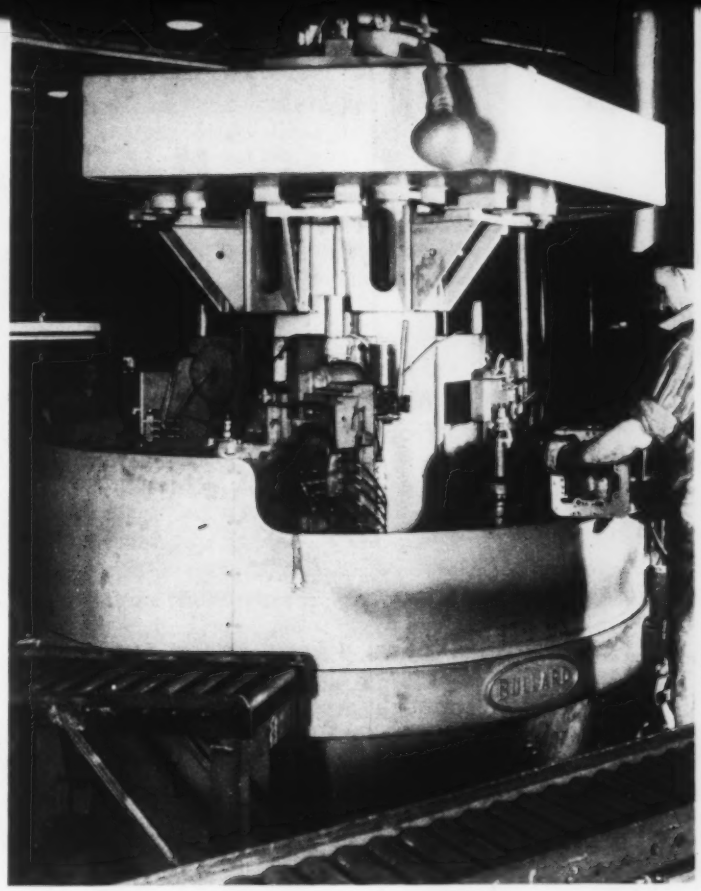
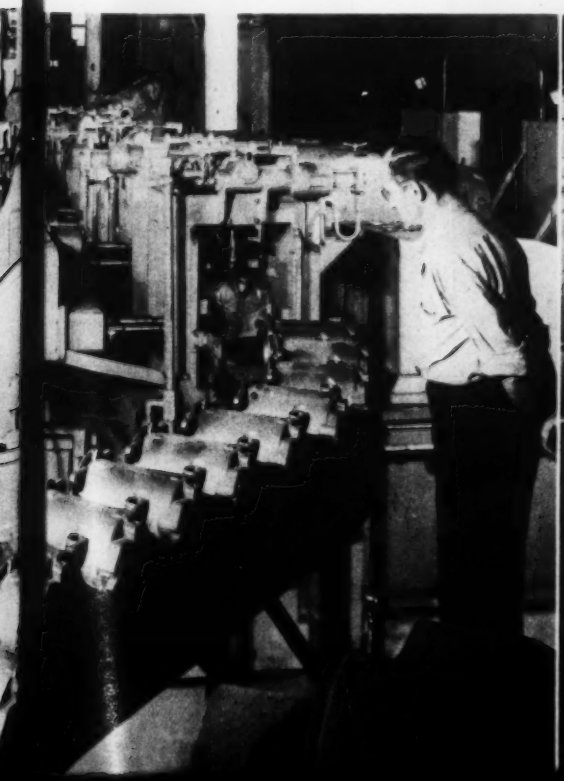
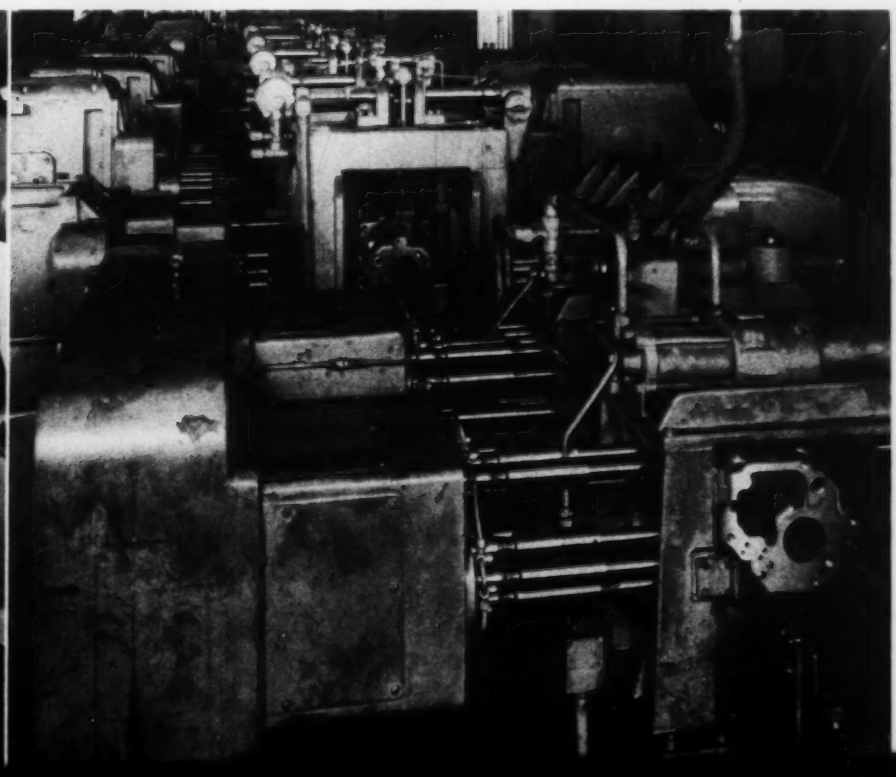


Fig. 4—Three-station vertical turret lathe, with single cutters on slides both above and below the cases which are mounted on vertical spindles. Note hand lever at right of station in foreground, operation of which lubricates every point on the machine

Fig. 2—Discharge side of three-station horizontal transfer-type drilling machine, with heads moving in automatically from both sides to drill holes in the ends of the cases, clamped hydraulically in central fixtures. Cycling is fully automatic

Fig. 3—Second transfer-type drilling machine has five stations for drilling holes in both sides of the cases. The fifth or final station in the foreground operates from one side only, the case first being turned over automatically to expose the bottom face





Warehouse Handling Setup Speeds Order Processing

Material moving through this warehouse travels in a straight line from the time of its arrival until it is assembled, processed and dispatched to the customer's plant

By DAN REEBEL
Associate Editor, STEEL
Photography by the author

IMPROVED customer delivery, due to faster assembly of ordered items, is effected by one-way movement of material through processing stations at United States Steel Supply Co.'s new Cleveland warehouse. Designed and erected to stock and handle the largest sections rolled today, this scientifically laid out facility is known throughout the industry as an "ideal" warehouse. A similar plant was recently placed in operation in the St. Louis area by the company.

To insure efficient and economical operation, the most advanced processing, handling and auxiliary equipment has been provided. For instance, midway in the 380-foot long material entry area and between the two railroad spurs, an electric car spotter handles by means of cables and sheaves, the railroad cars that may have to be respotted after their initial placement by a railroad switch engine. Material then can be placed and unloaded at the aisle in which it is to be stocked. This under cover entry area is fully concreted so large trailer trucks may bring their loads in without inconvenience. Fourteen long cars or 16 short cars may be accommodated on the tracks laid 4 feet below the warehouse floor which places the floor of a gondola car or box car on the floor level of the plant.

Magnets Handle Large Plates—In aisle No. 1 electric magnets of 5-ton capacity are utilized for removing large plates from incoming cars. As they are operated from the crane cab, it is not necessary to have workmen within or near the cars. Plate clamps are also occasionally utilized for handling of plates within the aisle. In aisles No. 2 and 3 sling chains only are used. In aisle No. 4 sling chains and a 5-ton capacity sheet lifter handle material from cars to storage to processing to final shipment.

Each aisle is serviced by a 10-ton capacity crane

Fig. 1—High-speed friction saw cutting a large size I-beam to length

Fig. 2—Company designed plate storage racks for stocking 1-inch material up to 10 x 40 feet long

of most modern design and equipped with two 5-ton trolleys. These cranes are of 90-foot span and have a clearance of 25 feet above the warehouse floor level. They can work the entire length of each aisle, and can be utilized for loading outgoing material if necessary. But their main function is to stock material and feed various processing equipment such as shears, saws, etc. As a safety feature stairways are used by cranemen to gain entrance to the crane cab rather than climbing ladders.

During normal routine operation, material goes immediately into storage, however, sometimes when material is neded immediately it moves directly from the raliroad cars to the delivery area at the extreme opposite end of the plant.

In the zoning or transverse aisle at the west end of the plant, a 10-ton capacity single trolley crane runs at 90 degrees to and 15 feet above the cranes in the four aisle areas. This is used for zoning and loading outgoing material and is also equipped with a 20-foot spreader beam for handling longer lengths.

Shears Utilize Hydraulic Hold-Down—In aisle No. 1 huge plates which are to be cut to size are taken from the stock area and placed on ball stanchion beds, covering an area of approximately 65 x 42 feet, which enable operators to manually feed the material to either of the two shears of ½-inch by 12-foot long and 1-inch by 10-foot long capacity. Both are equipped with hydraulic hold-down and light beam control for alignment of material to insure straight cutting. The wide variety of processing equipment found in this plant is necessary because rolled material as received from the mill comes in stock lengths and must be cut to customer ordered lengths, widths and gages.

At the entrance to aisle No. 1 is located a 4-torch shape cutting machine capable of cutting four pieces of material simultaneously, and can accommodate steel up to 10 feet wide by 40 feet in length. "Fingertip control" is possible at any point in which the operator is working. Automatic templet tracing and manual tracing heads are interchangeable by the operator. The unit which has a 40-foot tracing bed and a 40-foot cutting bed is equipped beneath with metal pans on rollers for catching slag that accumulates during the burning operation. When the pans are full they are removed and the slag taken to storage or the dump.

Designed Own Plate Storage Racks—Located midway in aisle No. 1 is the plate storage rack area, of approximately 50 x 120 feet, designed by company engineers for storing material up to 1-inch thick by 10 feet wide by 40 feet long. These racks are of beam construction having small gussets located at the lower portion which guarantees that plates cannot be racked too tightly. They also provide play at the top of the material whieh facilitates the attaching of clamps for removal. Top of the racks are also equipped with a rounded cap which eliminates the necessity of a floorman during storing and racking of material; the crane operator handles the entire job.

A high-speed friction saw having a steel disk blade 60 inches in diameter and 9/16-inch thick is located between aisles No. 2 and 3 near the transverse aisle. This unit, capable of cutting 30-inch beams and channels to any desired length, features remote controlled, electrically operated feed and take-off rolls. A hydraulic system controls both the forward and reverse positions. The cooling system consists of a centrifugal pump supplying 75 gallons of water per minute at 275 pounds pressure. An electric control measuring device is used to gage lengths.

Located just behind the high-speed friction saw is a double angle shear capable of making 20 strokes per minute and having a capacity for cutting 6 x 6 x 1-inch mild steel angles. A 70-foot conveyor delivers to the feed side and a 34-foot conveyor with an ad-

Fig. 3—Manually operated hand truck with swivel bed that facilitates stocking and removal of small bar shapes from storage racks

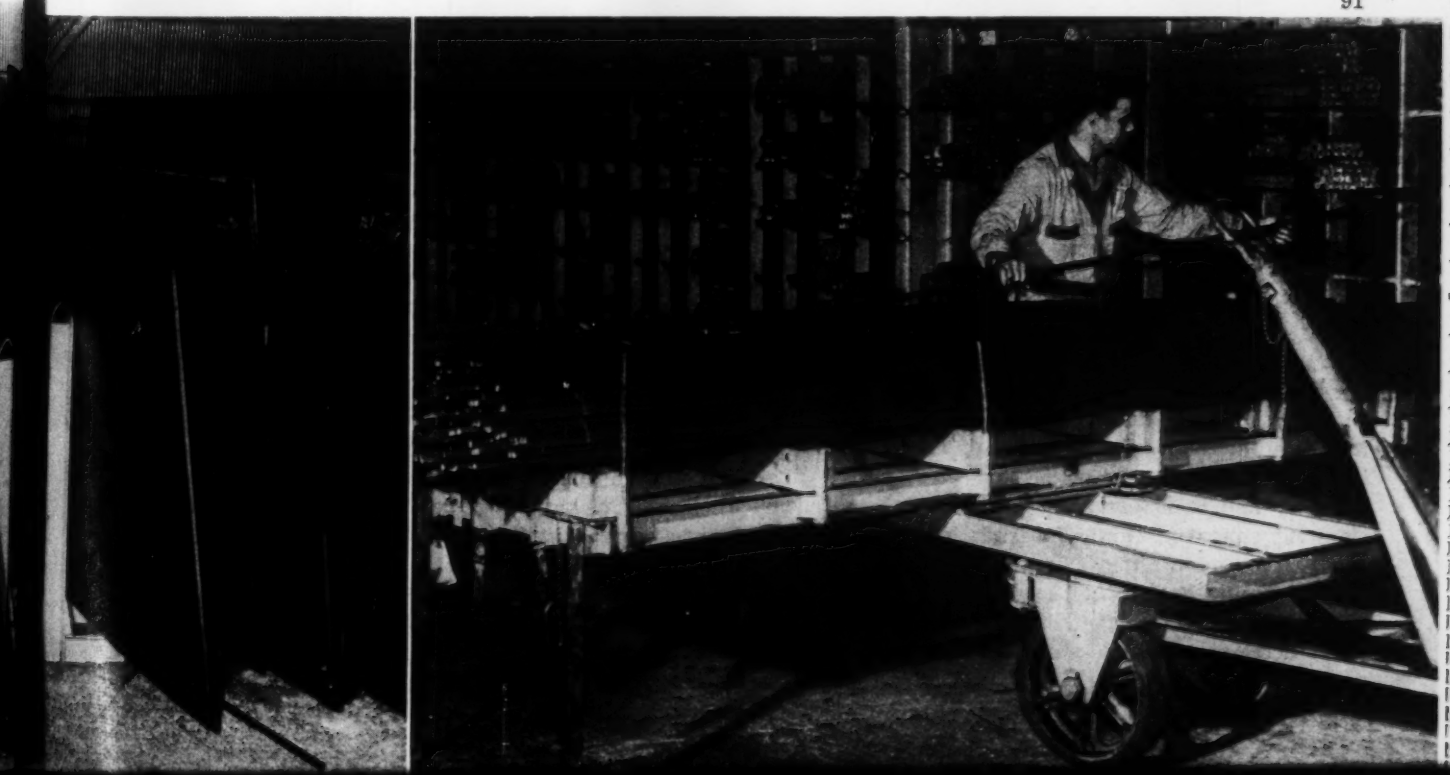


Fig. 4 (right)—Plan view of the new warehouse showing location of the various aisles and equipment

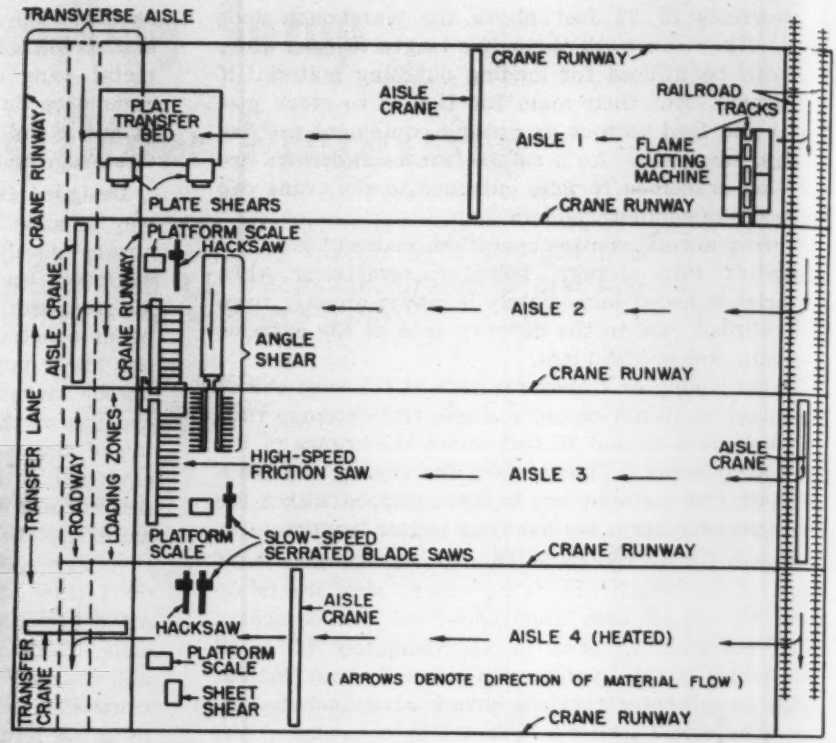


Fig. 5 (below) — Worm's-eye view showing one of the aisle cranes moving under the transfer crane in the transverse aisle

justable gage removes material from the take-off side. The right side unit is used to shear structural angles, flat bars and bar size angles. The left side unit is used to shear angles up to 3 x 3 x ⅜-inch and mild steel rounds up to 2⅛ inches in diameter. The blades are also notched for ⅝, 1⅜, and 2⅛-inch diameter bars.

Hand Trucks Used for Small Order Assembly—In the Cleveland metropolitan area a considerable tonnage and variety of high quality, highly finished steel bars for exacting purposes must be stocked to meet customer requirements. To facilitate their delivery they are kept in aisle No. 1 which is completely paved to enable the use of hand trucks for assembly of the orders. This is necessary because these bars move out in relatively small quantities and great variety that it is not possible or economically practicable to handle all of them by crane. Material is so stored that light weight bars may be put on the trucks by the operator and transferred by trailer trains to trucks. shipping zones or cars. Use of these hand trucks relieves the main crane of much uneconomical effort. The section is heated and equipped with thermostats and humidistats to control humidity which might prove detrimental to the stocked material.

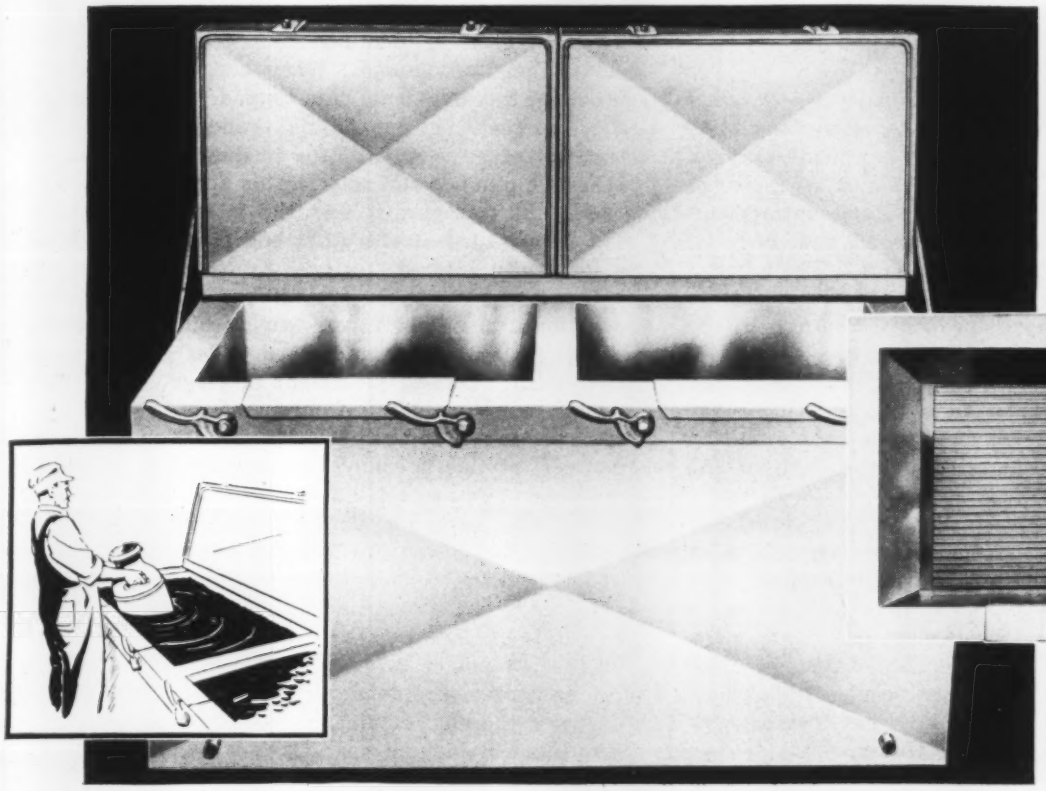
Manually operated hand trucks, used in all aisles for assembling of small miscellaneous orders, have ball bearing swivel beds which may be turned at any angle to the direction of the truck's travel for ease of loading and unloading small material.

Four floor-type platform scales of 10-ton capacity each are spotted near the various processing units and eliminate any needless backtracking of material during the course of its receiving, processing or shipment. Material always moves in a one way direction from receipt to stock to processing to loading.

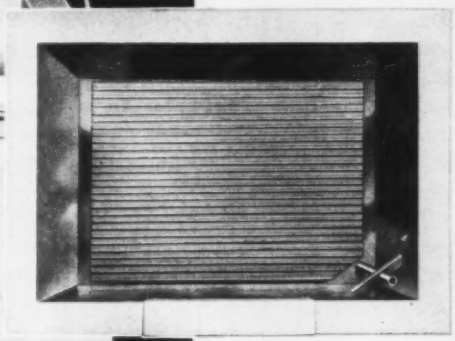
Features Light-Beam Control—At the end of aisle No. 3 is located one 12-inch blade-type hack saw and one 10-inch disk saw, both equipped with automatic feeds for cutting multiple pieces of rods, squares, hexagons, etc. These are predominately used for hot-rolled material. At the end of aisle No. 4 is placed another blade-type hack saw of 10-inch capacity and a 12-inch capacity disk saw used for cutting high quality, highly finished bars. In this same aisle is located a ¼-inch capacity 12-foot shear also having hydraulic hold-down and light beam alignment control which is primarily used for cutting sheets of all types such as stainless, cold rolled, galvanized, etc., down to a thickness of 30 gage.

The manually operated sheet lifter which serves only in aisle No. 4 utilizes angle holds which afford faster pick up and handling of material in addition to eliminating surface damage sometimes caused by use of chain slings.

In aisle No. 4, sectional racks having approximately 138 12 x 12-inch pockets to a section are used for the stocking of various shapes, sizes and grades of



THE HAVERLY Night and Morning Milk Cooler which makes it possible to cool each milking without removing cans from previous milking. It is one of the numerous models made by Haverly Electric Co., Inc., all of which are lined with a specially modified Revere Copper.



LOOKING DOWN into one of the compartments of the Haverly Milk Cooler showing the tough, non-rusting, easy-to-clean Revere Copper lining.

HOW COPPER, THE RIGHT COPPER *Increased Sales* OF HAVERLY MILK COOLERS

On farms throughout the country mechanical refrigeration for the cooling of milk has been growing by leaps and bounds. Late in 1945, there were many complaints from the farmers regarding the war-quality rustable material used to line these milk coolers. They were difficult to clean and were rusting out rapidly.

When restrictions were lifted on copper and copper alloys, the Haverly Electric Co., Inc., Syracuse, N. Y., came to Revere to see if non-rusting, easy-to-clean copper could be used. The solution was not as easy as it sounds. For the copper, in addition to its non-rusting and high thermal conductivity properties, also had to be strong enough to withstand the constant banging of 80-lb. cans of milk, and at the same time sufficiently ductile for easy fabrication.

Two Revere sheet metal specialists and their staffs went to work. Tests showed electrolytic copper was not mechanically feasible. Then tests were run with several modified coppers. One of these was found to possess *all* of the requirements.

This use of copper as a liner for milk coolers further resulted in the development of the Haverly "Floating Ice" feature. The ice forms on the side walls of the smooth copper liner; works loose and floats to the surface, adding cracked ice cooling around the top of the can at the cream line, where fast and efficient cooling is needed and proves most profitable. Hence a more efficient unit. Also, due to copper having the highest heat-conductivity of any other commercial metal, copper cooling coils are attached to the outside of the copper lining. This results in greater cooling efficiency and easier cleaning. Here again Revere helped. The Revere welding department developed a fast method of attaching this Revere Dryseal Copper Tube to the lining.

The final outcome is that sales of the Haverly Electric Co., Inc., have increased until they are selling all they can produce of this type cooler, while the mutual knowledge gained has resulted in this company expanding its use of special copper alloys in coolers for other industries.

Perhaps Revere can be of help in developing or improving your product, increasing your sales. Why not call the Revere Sales Office nearest you next time you have a problem in metals?

REVERE

COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

230 Park Avenue, New York 17, New York

Mills: Baltimore, Md.; Chicago, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Rome, N. Y.
Sales Offices in Principal Cities, Distributors Everywhere

high quality, highly finished and stainless bars. Racks vary in length from 12 to 24 feet and are approximately 7 feet high.

Storage pockets are provided in aisles No. 2 and 3 for hot rolled bars and bar shapes of various sizes and grades. The storage pockets are made of 12 x 12-inch timbers with 1½-inch diameter rods driven 8 inches into the timbers which extend upward approximately 40 inches to form 10½-inch wide pockets.

Shipping Section Is One-Way Area—When material is to be delivered to a customer it is moved from storage to position under the transfer crane in the transverse aisle of the building. Or if the material is to be processed before shipment, it is moved to the cutting machine and then to a position under the transfer crane. The transverse aisle is a one-way area with all vehicles entering at the back of the plant and leaving at the front.

The transfer crane operating in the transverse aisle connects with all four of the warehouse's other aisles and cranes which run at right angles. The crane runways in aisles No. 1, 2, 3, and 4 project only partially into the transverse bay, leaving a transfer lane at the end of the building through which the transfer crane can move materials without having to clear the aisle cranes. Adjacent to the transfer lane is a runway for motor trucks.

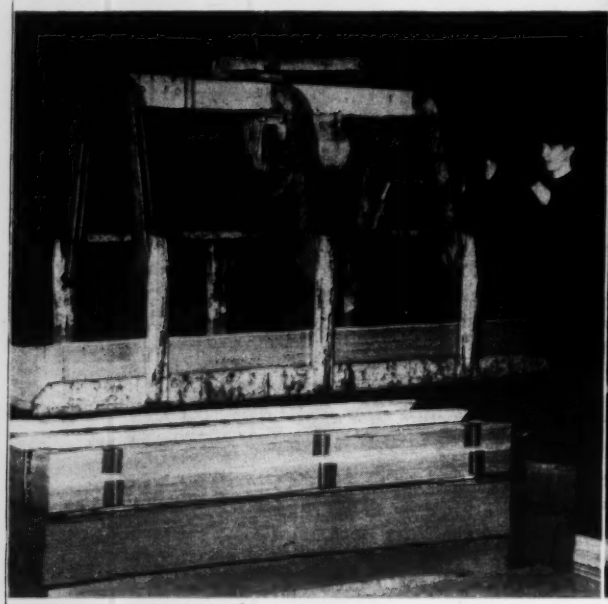
Color System Aids Shipment Assembly—Shipment assembly zones are placed parallel to the truck runway and each is identified by a number and color painted on its columns. When outgoing material is prepared for shipment, it is tagged with a color and zone number and moved by crane or tractor and trailers to the portion of the loading zone displaying the same number and color. This applies to all truck shipments, however, if material is to be shipped by rail it is loaded at the other end of the plant where it originally entered.

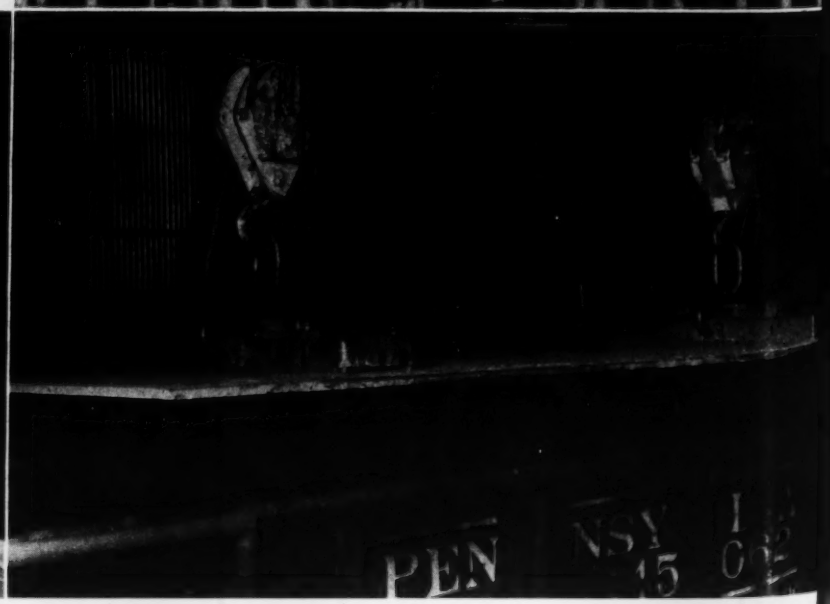
Oxygen and acetylene gas used in the flame cutting equipment is stored in an outside building attached to the main building and piped under ground to the equipment. During placement of large heavy plates on the ball stanchion beds preparatory to shearing, it is unnecessary for any workman to help guide the material as this is completely controlled by the crane operator. Controls for the high-speed friction saw are located behind a shatter-proof, Plexiglass shield away from all moving parts and sparks and provision is made for the saw blade to go back to its starting position before the approach and delivery live rolls can be operated. Controls are incorporated in the equipment to prevent the forward motion of the saw when the delivery and take-off rolls are operating, thereby eliminating the possibility of the saw blade coming in contact with the material as it is being conveyed by the rolls.

Fig. 6 (below)—Ten-ton capacity sheet lifter eliminates any damage to material that might be caused by use of slings

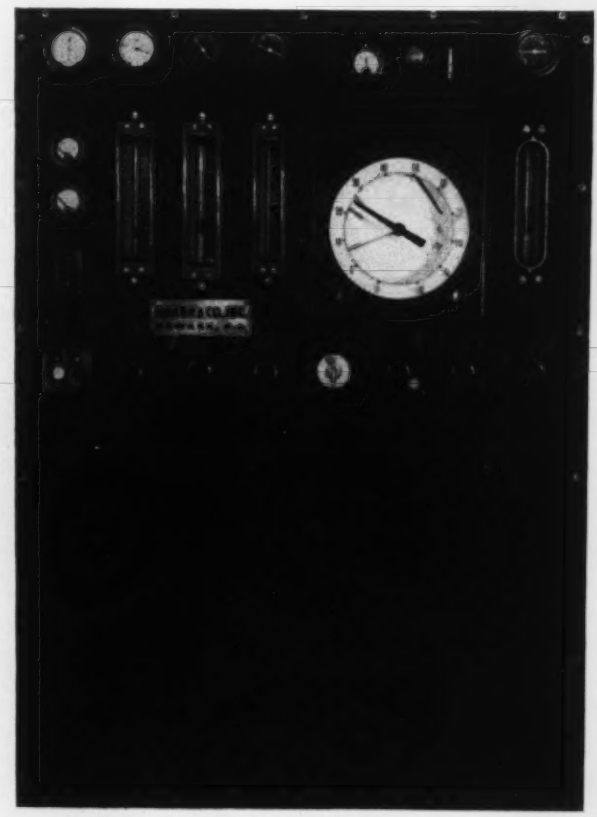
Fig. 7 (right)—Ball stanchion beds facilitate movement of material up to and away from the large trimming shears

Fig. 8 (below, right)—Use of crane controlled magnets for plate removal from railroad cars obviates necessity of workman on floor near area of removal





PURE NITROGEN-HYDROGEN ANNEALING GAS *at Lowest cost*



Nitroneal Generator
500 CFH Capacity

Fundamentally New Ammonia-Air Reactor Produces Pure Nitrogen with a Controllable Hydrogen Percentage (.1 to 35%).

You Can Obtain the Ideal Gas To Fit *Your* Needs At Will.

- Fully Automatic
- No Operating Personnel Required
- No Explosion Hazard
- 50% Less Costly Than Dissociated Ammonia

NITRONEAL GENERATORS
ARE AVAILABLE IN 100 CFH TO 10,000 CFH CAPACITIES

CATALOG ON REQUEST

Baker & Co., Inc. 113 ASTOR ST. • NEWARK 5, N. J.

Synchronized Drives and Controls Raise Fretz-Moon Operating Speeds

Uniformly higher quality, greater pipe size accuracy, and interior cleanliness of product produced on Wheeling Steel's new mill are attributed to both the synchronized all-electric motor drive for the integrated forming and welding stands and an adjustable "flying saw" mechanism

OF THE many miracles of modern production achieved throughout industry during the past decade, none has had a greater influence upon stepping up productivity and lowering manufacturing costs generally, perhaps, than the remarkably rapid gains attained in hiking operating speeds of various continuous processes. What once were heralded as phenomenal operating speeds are now becoming increasingly regarded in many instances as common production speeds.

One need not look far to find dramatic proof of this progress. Take the steel industry for example. It offers one of the latest, most interesting illustrations—the recently-completed Fretz-Moon tube mill at the Benwood, W. Va., works of Wheeling Steel Corp.

This continuous-process pipe fabricating installation reflects the industry's trend toward greater productivity and higher operating efficiencies as a result of technical advances. In addition, and equally important, it also demonstrates clearly the vital contributions to the successful realization of these objectives made by the development of synchronized electrical drive and associate motor-control equipment.

Designed to provide a production capacity for forming pipe of various sizes (½ to 1½ inches in diameter) at processing speeds up to and including 1000 feet per minute, the new mill incorporates two notable features. Both play prominent roles in the positive attainment of the uniformly higher quality, greater pipe size accuracy, and interior cleanliness of product which the Fretz-Moon pipemaking process is expressly designed to assure.

The first significant feature is an adjustable "flying saw" mechanism capable of cutting finished pipe in any desired length from 18 to 54 feet—with an accuracy of plus or minus 0.50-inch—at far higher speeds than previously obtainable in mills of this type. The other unusual feature is a synchronized, all-electric motor drive, for powering the integrated forming and welding stands, that provides constant, reliable operating conditions to accommodate a wide range of speeds and pipe sizes.

Speed More Than Doubled—When it is remembered that the first pipemaking mill of this type (installed as recently as 10 years ago in the Youngstown-Pittsburgh area) provided a maximum speed of only 400 fpm, the marked increase in speed since achieved, as attained in the new installation, becomes quickly apparent. Utilization of speeds up to 1000-fpm in the Fretz-Moon process, however, has brought with it definite control co-ordination problems, which are best solved through the engineered application of synchronized motor drives and their appropriate control auxiliaries.

In designing and engineering this tube mill, Aetna-Standard Engineering Co., Youngstown, and Reliance Electric & Engineering Co., Cleveland, were called upon at the outset to meet two basic requirements stipulated by the Wheeling management organization. These requisites were: To maintain close tolerance (plus or minus 0.50-inch) constantly of cut lengths of finished pipe at speeds ranging up to 1000 fpm; and to provide a dependable, economical means of pulling skelp through forming and welding stands at a constantly maintained, accurate speed.

First requirement was met through

Fig. 1—Initial operation of new Fretz-Moon tube mill is to pass coils of skelp through a roller leveler, after which leading and trailing edges of succeeding coils are butt-welded together in the unit shown at left

. . . when you use "NATIONAL" Graphite Stool Inserts

• *It is impossible for molten metal to stick to graphite under any conditions.* This means that an ingot cannot possibly stick to a graphite stool insert. If you are bothered with stickers, equip your stools with "National" graphite stool inserts.

Think of the savings!

No lost time in freeing stuck ingots. Keeps maintenance costs down. For complete information on "National" graphite stool inserts, write to National Carbon Division, Union Carbide and Carbon Corporation, Dept. ST.

The terms "National" and "Eveready" are registered trade-marks of

NATIONAL CARBON DIVISION
UNION CARBIDE AND CARBON CORPORATION
30 East 42nd Street, New York 17, N. Y.

District Sales Offices: Atlanta, Chicago, Dallas, Kansas City, New York, Pittsburgh, San Francisco

Foreign Department: New York, U. S. A.

MORE THAN DOUBLE THE USABLE LIGHT!

The biggest news since the invention of flashlights—the brand new leakproof "Eveready" No. 1050 flashlight battery—gives more than double the usable brilliant white light for critical uses than any other flashlight battery we have ever made. NO METAL CAN TO LEAK OR CORRODE.

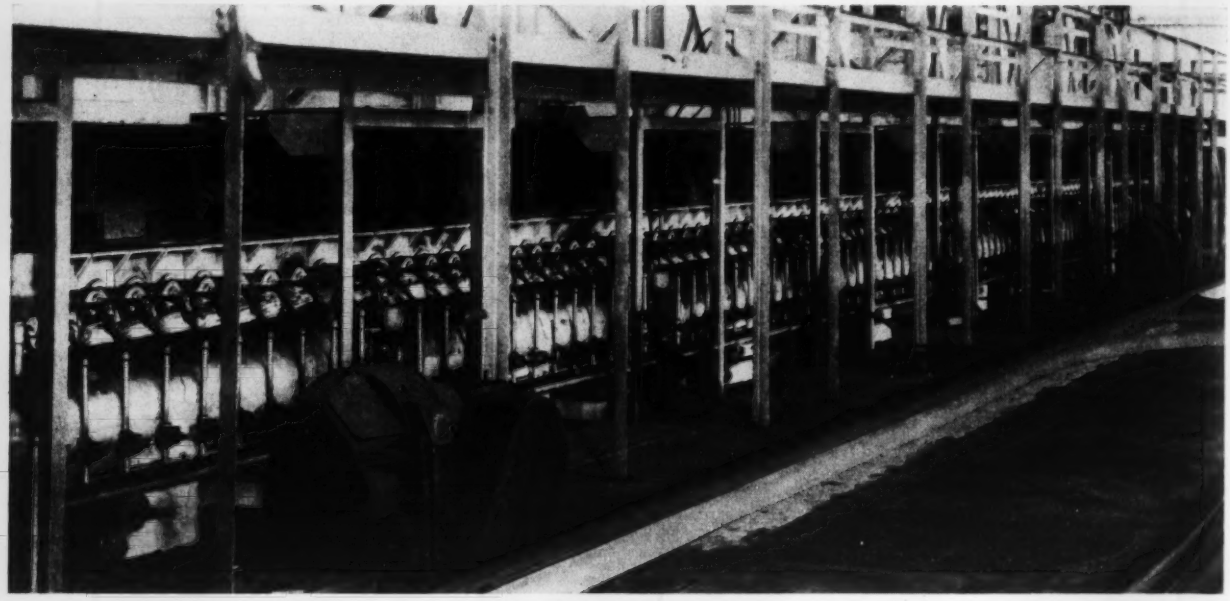


Fig. 2—View of furnace used in heating skelp edges to a welding temperature

the use of an electronic-type speed regulator; while the second was fulfilled by providing one basic power source—a single motor-generator set with associated control—to serve the second pinch roll motor at the furnace entrance, the 12 drive motors in the integrated forming and welding machine, and the saw carriage motor. A description of the Fretz-Moon process will undoubtedly prove of interest in this connection, as it will make the significance of these speed-control problems and their solution in each instance increasingly clear.

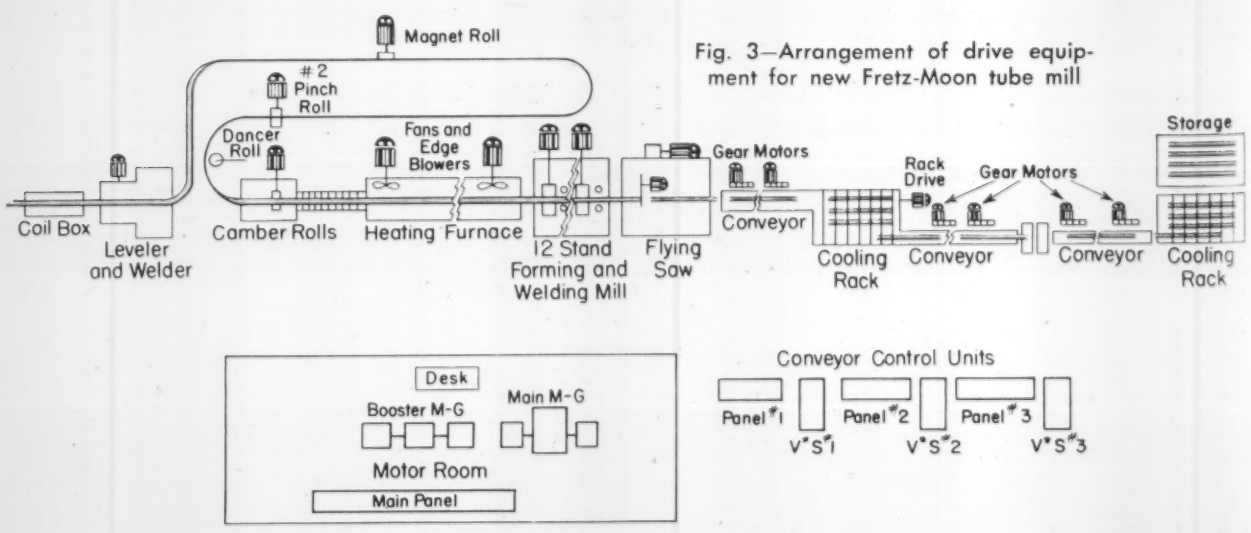
As contrasted with conventional butt-weld pipe mills, this particular process employs a long continuous coil of skelp in place of the usual short strips of material. The skelp strip is pulled out of a coil box by a roller-leveler driven by a 50/60 horsepower, 230-volt, direct current, 400/1600 revolutions per minute motor. The flattened skelp then passes through a butt-welder and flash trimmer to a set of pinch rolls driven by a 10-hp, 230-v, dc, 600/1800 rpm motor, which feeds the strip into a long, open looping area adjacent to a gas-fired, 183-foot heating furnace. The strip is conveyed into the back part of the area by two magnetic rolls, mounted in the floor line, driven by five 7½-hp, 230-v, dc, 400/1600 rpm motors. All these motors are powered from the shop direct current constant potential system, and do not synchronize with the mill and No. 2 pinch roll units.

Skelp Must Fill Looping Area—In order to operate these last units continuously at a preset speed, it is necessary to maintain the looping area full of skelp at all times; for when the feeding section is shut down to butt-weld and flash-trim the leading and trailing ends of coils, the loop storage is depleted. Gearing and speed range of the constant potential motors permit replenishing the loop many times faster than the rate at which the strip is being withdrawn from the area.

A second pinch roll unit, driven by a 10-hp, 230-v, dc, 600/1800 rpm motor, withdraws the strip from the looping area in synchronism with the mill speed. Synchronization is accomplished in two ways: First, by supplying adjustable-voltage power from the mill generator; and secondly, by a definitely preloaded dancer assembly that controls the field of a boost-buck generator in the armature of the pinch roll motor.

The dancer arm protudes vertically from the floor line and is activated in a horizontal plane by the strip, making a 180-degree loop around the arm in passing from the pinch roll through the furnace to the mill. Preset loading of the dancer assembly provides the necessary strip back tension as it passes through the furnace to the 12 forming and welding mill stands, each of which is individually driven

Fig. 3—Arrangement of drive equipment for new Fretz-Moon tube mill

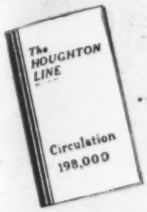


The HOUGHTON LINE NEWS

Published by E. F. Houghton & Co., pioneers in heat treating and metal processing products since 1865

REG. U. S. PAT. OFF.

VOL. 18, NO. 3 JULY, 1950



...the "near editor's" viewpoint

"Quickies" from a quick trip to France:

Seems to be no immediate prospect of a Communist government in France. "Commies" are a noisy minority, but the average Frenchman is too much of an individualist to be a Communist.

Apparently there is no picketing during strikes in France.

Fashion note: Daytime skirts are short and very tight, belted in at the waist until one wonders how the girls breathe.

Plant of Societe des Produits Houghton in Paris, destroyed by spectacular fire which made U.S. newsreels in 1948, now rebuilt.

Aaron E. Carpenter

CHAIRMAN OF THE BOARD.

Tanks to Houghto-Draw

Drawing of gas tank half sections in one simultaneous operation is being done by a large steel processor with the aid of a mixture of two *Houghto-Draw* compounds.

A 38½" blank of steel .105" thick is drawn into a shape 24" deep, eliminating four to six operations formerly required. The complete cycle, including automatic loading and unloading, takes only 24 seconds.

A mixture of 5 ounces each of Houghto-Draw 356 and 357 to the gallon of water at 130° F. did the trick. Discs were coated, dried and drawn without squealing or chatter, which had been a problem. After drawing 50 sections satisfactorily, they tried the previous compound, but the squeal was again heard. It disappeared when they returned to Houghto-Draw.

The Houghton technical man in your section will recommend, after review and trial, the best Houghto-Draw for your drawing need. And he'll stay on the job until he makes it work. Want to see him?

Why Rectify?

So simple a part as a bolt for a lift truck may present a heat treating problem. One manufacturer had heated bolts in salt, but had trouble keeping the bath in balance. He had rectified the bath three times a day, and desludged it each day. Then he switched to Houghton's *Liquid Heat 1145*, with a quench in our treated quenching oil. Results: time saved on rectification, hardness increased, no decarburized work.

No Mystery About Salt, But—

The day has passed when the composition of heat treating salts was a mystery. Nearly every metallurgist knows, or can learn from standard reference books, how to formulate salt mixtures for various heat treatments of steel.

Why, then, should they not make up their own mixtures from basic chemicals and save money? Or, why shouldn't they buy on lowest price per pound? Sounds plausible, but it's not being done, even by the largest users. And there are good reasons why not.

In the first place, operating difficulties require more knowledge than a man equipped with a price list and chart of salt melting points can hope to have.

Most salt mixtures are based on some thirty nitrates, nitrites, carbonates, chlorides, fluorides, cyanides, etc. These materials are obtained from a limited number of sources known to most metallurgists.

But the strict control exercised over incoming shipments by Houghton, based on many years of experience, sets up a safeguard against possible impurities in the salts. Each lot is sampled and analyzed in our Laboratory.

Impurities even to the third decimal point may affect the service a chemical gives in heat treating. Even a C. P. (Chemically Pure) salt may contain a prescribed maximum of such impurities. Such contaminants as chlorides in a nitrate bath or sulphates in a hardening salt would tend to attack the work or pot after continued operation.

Rectification of a salt bath isn't always easy. It takes time and experience. Our own practice has been to make such baths as nearly self-rectifying as possible by including, wherever we can, a rectifying element in the salt mixture itself which prevents decarburization.

Proper mixing of the ingredients is most essential, as the formula is set up for an eutectic mixture; if improperly compounded, the batch may vary and cause trouble when the salts are put under heat.

There's still another very sound reason for buying salts from an experienced, reputable supplier. That is *service*.

The Houghton Man who calls on you is likely to be a specialist himself, in heat treating and in metal working, all the way from iron and steel to the finished, heat-treated, machined piece. He is not a salt specialist alone; often he is an engineering graduate with long field experience. Behind him are metallurgical engineers ready to help him and his customers.

Those technicians look further than the salt if the user isn't getting the results he wants. They may go back to furnace design, or to steel analysis, or shape of part —or look ahead to the quench or draw or final cleaning.

While metallurgy itself has become a pretty exact science, there is still a certain amount of experimentation necessary, and plant metallurgists are quick to admit that counsel and advice from our trained field specialists and research staff men have helped them out of many difficulties.

So there's the purity of salts, the know-how in manufacturing them, and the ability to step into a plant and make them perform right — three good reasons why metal men prefer to buy salts from Houghton. Maybe you can buy salt at a lower price per pound, but the service is worth the small extra amount it may cost. Think it over!

Double Tool Life at ⅓ the Oil Cost

Which would you use — a cutting fluid which costs 46 cents per gallon, and which permitted 21,600 pieces between tool grinds, or a fluid which cost 16 cents per gallon, mixed with water, that so lubricated the tools as to enable 54,000 pieces to be machined without a tool grind?

The answer is obvious. You'd do what that company did — standardize on *Antisep All-Purpose Base*, miscible with water, yet having a higher film strength than straight oil. Better look into this base, which will do 90% of your cutting jobs, and do them better.

Can You Use This Helpful Data?

Check the items you'd like to receive, and attach this slip to your letterhead, mailing to address below. The material will be sent free, without obligation.

1. Liquid Salt Bath Catalog— 32 pages of description and working ranges of Houghton salts for heat treating.

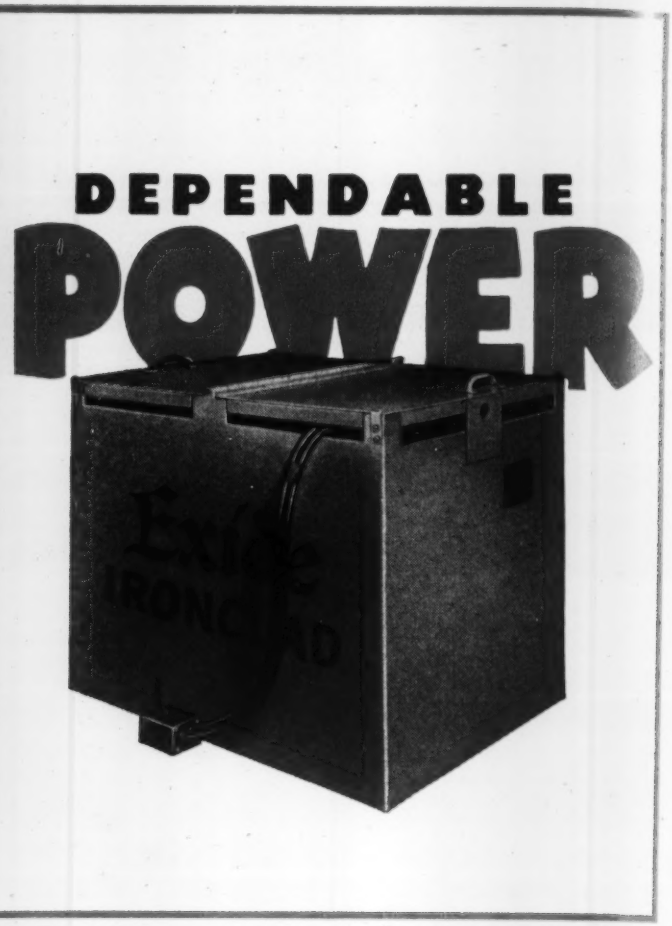
2. "All-Star" Line-up of Rust Preventives—8 page booklet listing the Rust Veto "Winning Eleven."

3. Hydraulic Oil technical bulletin; setting forth the merits of treated Hydro-Drive Oils, with test data.

4. Product Data Sheet on Houghto-Draw 357 for wire, rod, bar and tube drawing.

5. Houghto-Clean 220 Data Sheet, describing emulsion-type cleaner for metals.

E. F. HOUGHTON & CO.
303 W. LEHIGH AVENUE
PHILADELPHIA 33, PA.



You get LOWEST COST OPERATION with

Exide-Ironclad Battery POWER

Exide powered electric industrial trucks assure the lowest costs for truck operation . . . costs for recharging run as low as 2 cents per KWH of battery capacity . . . seldom more than 15 cents per shift to maintain. You gain in many other money-saving ways when your trucks are powered by Exide-Ironclad Batteries. You get:

- instant surge of power to meet all demands in *start-stop*, *lift-and-shift* manipulations . . . plus finger-tip control for split-second handling, easy maneuvering, accurate spotting.
- full-shift availability, with trucks handling as much tonnage during last hour as first, and at practically no difference in speed.
- high truck availability—freedom from mechanical troubles, and with no unscheduled periods of down time.
- easy to keep charged—batteries absorb a very high percentage of charging current.
- exceptionally long life—proved on more than 100,000 heavy-duty jobs.
- inherent safety—quiet operation with less worker fatigue; no vibration to jar work in transit; no oil seepage on floors to create accident hazards.
- wide range of sizes for every make of battery-electric truck; compact construction permits standardization.

Combined, these and other Exide-Ironclad characteristics assure you dependable performance, day after day . . . for years.

Exide-Ironclad Batteries are the Best Power Buy . . . AT ANY PRICE

Write for more facts and FREE copy of Exide-Ironclad Topics. It contains latest developments in materials-handling...shows actual case histories.

"Exide-Ironclad" *Reg. Trade-mark U.S. Pat. Off.*

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32 • *Exide Batteries of Canada, Limited, Toronto*

1888 . . . DEPENDABLE BATTERIES FOR 62 YEARS . . . 1950

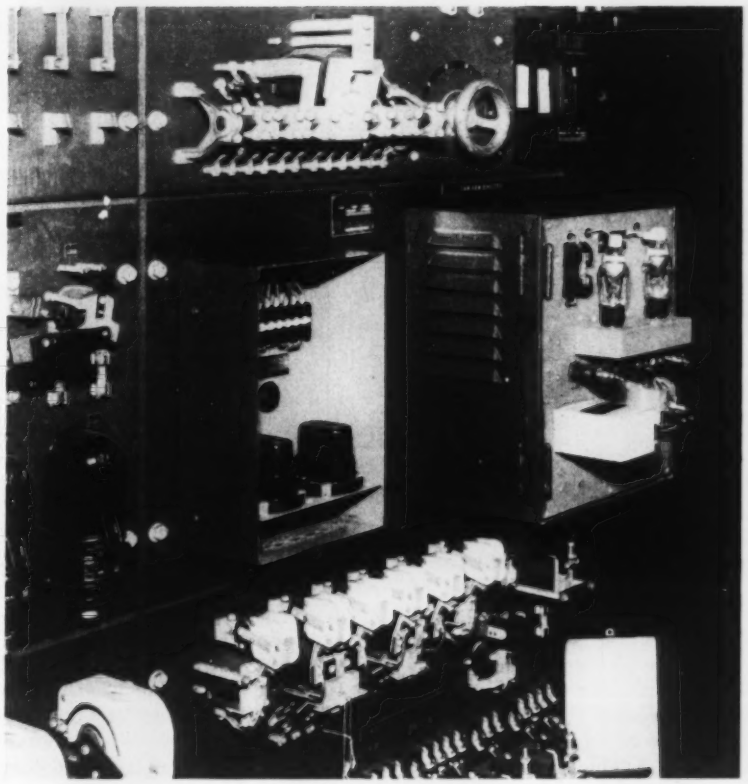


Fig. 4—Reliance VSR electronic speed regulator used in synchronization of speed of forming mill drive motors and carriage of the flying saw

by a 25-hp, 230-v, dc, 600/1800 rpm motor.

This brings to mind an interesting observation. To digress momentarily, contrast this with the fact that all forming and welding stands incorporated in early Fretz-Moon tube mills were driven by a single motor to accommodate production-line speeds up to a maximum limit of 400 fpm.

Here again, you have another indication of what has been accomplished through technological development during the past decade to spur productivity and lower costs—and you have a quick picture, as well, of the steadily increased dependence of maintaining close, co-ordinated control in product processing operations upon the use of efficiently synchronized drive equipment.

Coil edges are heated in the furnace to required welding temperature by hundreds of small gas burners lining both sides of the furnace. Fans and edge blowers maintain proper temperature control and direct heat against skelp edges and away from the center. This operating consideration holds particular importance; the strip must retain sufficient strength to withstand the tension resulting from the motors pulling the skelp through the furnace.

Adjustable Flying Saw Utilized — Forming and welding of skelp into tubing follows. Edges of the strip are just at the melting point upon exit from the furnace. While strip is shaped into tubing by forming and welding rolls at one end of the unit, seam-welded pipe leaves the forming stands at the other end of the machine, traveling at the maximum rate of 1000 fpm. Then the tubing is sawed, automatically, to the desired length by a specially-designed flying saw. Fully adjustable, it permits pipe to be cut in any desired length from 18 to 54 feet, regardless of the production speed at which the mill is running.

Tolerances of plus or minus 0.50-inch, and the high rates of operating speed used, together demand accurate, instantaneous response to accomplish this necessary critical control. An electronic device is used to achieve this closely co-ordinated control of product-processing.

A signal from one of the tachometers on the mill drive motors and a signal from a similar tachometer mounted on the saw carriage motor are compared in the electronic circuits of the device. Output of this unit determines field strength of a 10-kilowatt booster generator which, connected in series with the saw carriage motor, either bucks or boosts the main generator voltage to keep the saw carriage properly synchronized with the speed at which pipe is being processed. An error signal of only 0.025-volt between the saw carriage and forming mill tachometers results in a booster voltage change of plus-or-minus 50 volts.

Should it be found necessary or desirable to eliminate one or more of the finishing stands from operation, the saw carriage can be easily synchronized with another mill stand simply by manipulating a selector switch on the operator's desk. Selector switch contacts are arranged to compare the saw carriage motor tachometer voltage with that of the selected mill stand tachometer.

The pinch roll motor at the furnace entrance, the 12 motors driving the integrated forming and welding machine, and the saw carriage motor, are all powered by a 250-kw, 1200 rpm, dc main generator, which is driven by a 400-hp alternating current synchronous motor. With the speed at which skelp passes through the mill controlled from a single basic power source, a completely synchronized drive is obtained that provides optimum stability of operation and high efficiencies.

Motors Adjustable By Field Control—To maintain proper relation between rolls, speeds of individual drive motors in the forming and welding machines are adjustable through field control. Inherent speed drop built into these motors assures synchronization regardless of load change produced by material and temperature variables. Operating speed of the entire mill, however, is controlled from the main generator.

Located midway along the tube mill at the flying saw, the 12 x 120-foot motor room provides an ideal vantage point in either direction for easily observing operations of the entire mill. The room contains the main control panel, operator's desk, and both the main and booster motor-generator sets.

After leaving the flying saw, the cut lengths of tubing pass over a series of three automatically-controlled conveyors and cooling racks. The first conveyor, 60 feet long, is driven by 22 Reliance 2-hp gearmotors having an adjustable speed ranging from 65 to 500 rpm. These are powered from a size 30 V-S unit.

Compactly packaged in a small air-filtered cabinet, the unit is conveniently located close to this conveyor, thereby providing a low-cost installation of a drive easily adjusted by an operator to control the movement of cut lengths of pipe as they emerge from the flying saw.

From the conveyor the pipe is positioned by a rotary kick-out motor on an inclined cooling rack driven

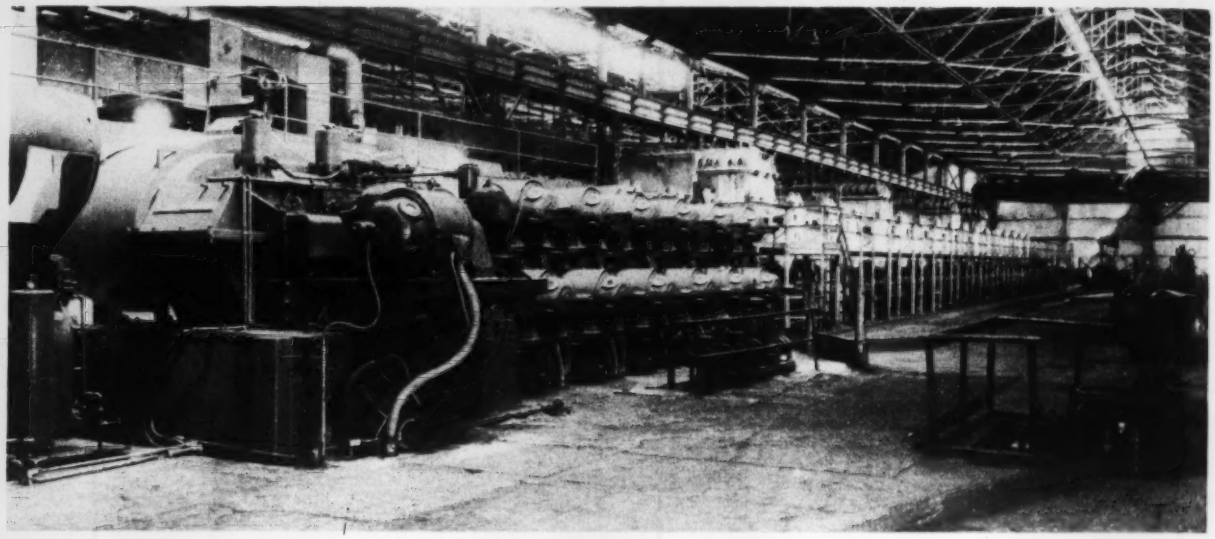


Fig. 5—View of new mill showing from left to right, the flying saw, welding stands and the long 183-foot heating furnace

by a 10-hp, dc motor. The cut lengths then travel along two additional conveyors and inclined racks, finally dropping into a storage area to complete the pipemaking process.

Ten direct current gearmotors drive the second conveyor, and 11 similar units are used on the third. Each group of motors receives adjustable voltage power from Reliance size 20 V-S units that provide maximum ease of operation. Accessory motors include those used for rack saw and cooling bed adjustment.

To summarize, it may be concluded that advances made through the steady improvement and continued refinement of synchronized motor-drive equipment and its control accessories, as exemplified by the new high-speed pipemaking installation at Wheeling Steel's Benwood works, have played a role of major significance in the orderly, progressive evolution of this highly important manufacturing development.

In the comparatively short space of only 10 years, production speed of the Fretz-Moon process has soared from a maximum rate of 400 fpm to 1000 fpm, thus having been increased by 150 per cent, or to 250 per cent of the speed originally obtained.

Weld Without Flash

(*Concluded from Page 87*)

clamps working close together is possible only when welding machine has precision controls to prevent burning and to assure repetition of the desired cycle of operations during production of each weld.

New Control System—These welds are produced on one of the latest type flash-welding machines provided with a new and unusual system of control and a "hammer blow" type pushup. Fig. 6 is a simplified operating diagram to show method of control, main operating elements, etc.

In Fig. 6, A is stationary electrode clamp; B, moveable electrode clamp; C, connecting rod to eccentric D on shaft E which is rotated by the air cylinder H through the crank F. Motion is controlled by oil cylinder G and metering valve which can be adjusted for desired oil flow.

Simple Operation — Operation is simple. When work is placed in the dies, operator steps on one foot pedal, closing stationary die. Work is positioned in dies by means of pins. Parts have been cut to exact length and 45-degree angle required for the 90-degree miter joint. Operator closes movable die by stepping on another foot pedal. As die closes, it actuates the control valve letting air into the air cylinder at about 100 psi. When work is clamped, flashing current is applied.

Air cylinder moves crank F to right, causing eccentric to rotate in counter-clockwise direction, moving B to left, thus closing dies. Meantime welding current has been applied and flashing occurs at rate controlled by metering valve on G. This is the flashing period.

The fast pushup is started by the cam K which rotates with E to a point where the cam rise J operates by-pass valve L which acts to cut off completely the retarding action of the oil cylinder, allowing the pressure in the air cylinder to bang home the moveable die. Control L also cuts off the welding current just as the pushup is made.

Pushup is so fast it sounds like a hammer blow. Maximum force available is 20,000 pounds. This is sufficient to squeeze out most of the molten metal from the joint. Die clamping members pinch off flash to produce joints shown in Fig. 5. System is subject to precise control since all operating members are calibrated.

Testing Springs at Less Cost

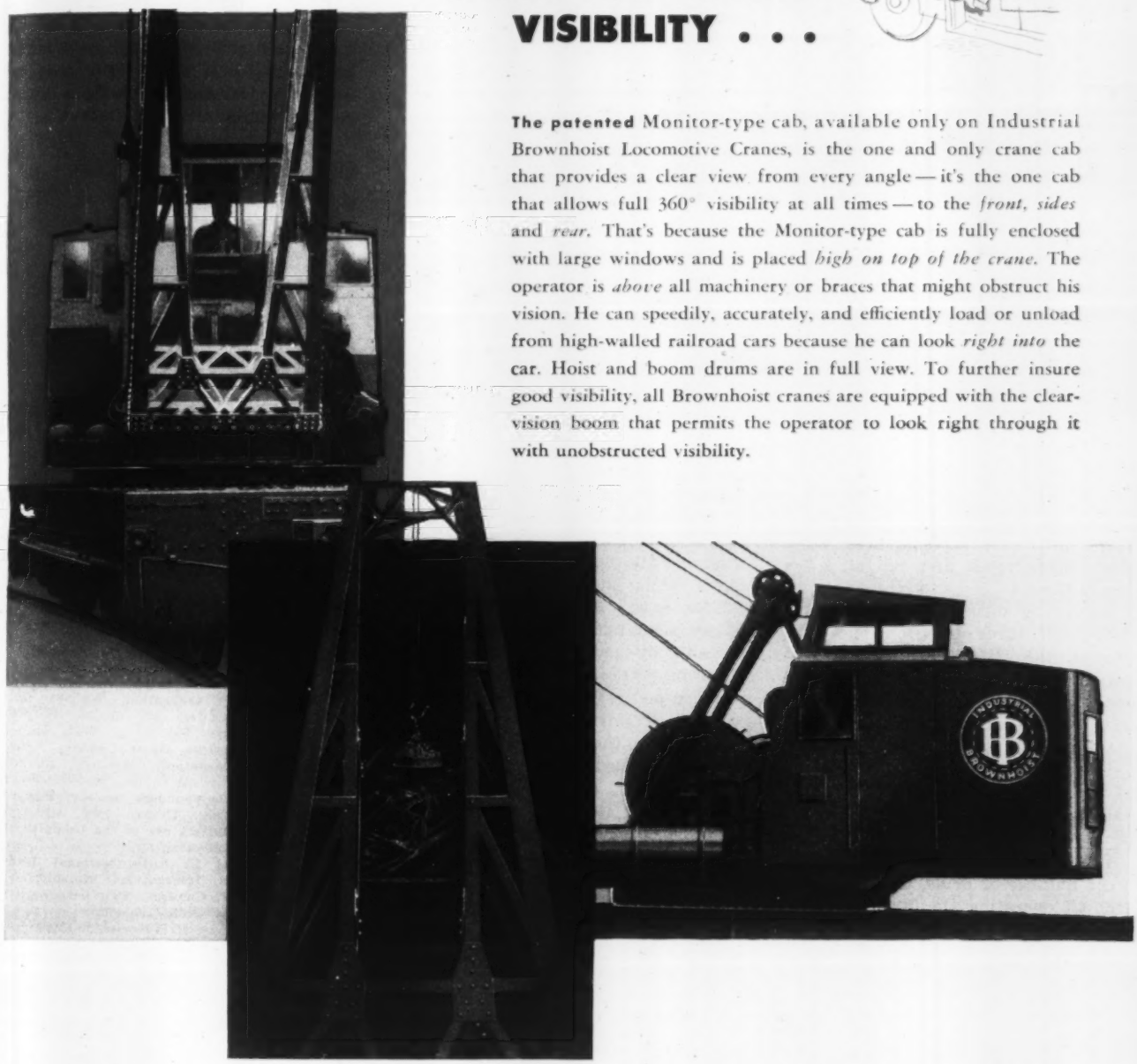
FASTER and more accurate testing equipment which is reported to give unusually good agreement between acceptance tests and manufacturer's quality control reports has enabled the inspection and quality control department of General Electric Co., Philadelphia, to substantially reduce costs for acceptance tests of small springs. The agreement has also ended need for 100 per cent tests that were necessary to establish tolerance conformity.

Testing of extension and compression springs within the 10-pound range is difficult, unless the testing equipment is accurate and sensitive to the slightest pressure and deflection, according to Robert S. Inglis, superintendent of the department.

Combination of the accuracy and speed of the Baldwin-Hunter spring tester, made by Baldwin Locomotive Works, Eddystone, Pa., has enabled the reduction of inspection costs. Another cost reduction resulting from the use of the spring tester was the discovery that a new set of spring design formulas was necessary to allow for manufacturing variables peculiar to all mass production equipment.

NO BLIND SPOTS IN THIS CAB!

EXCLUSIVE BROWNHOIST "MONITOR-TYPE" CAB GIVES CRANE OPERATORS CLEAR FULL-CIRCLE VISIBILITY . . .



The patented Monitor-type cab, available only on Industrial Brownhoist Locomotive Cranes, is the one and only crane cab that provides a clear view from every angle — it's the one cab that allows full 360° visibility at all times — to the *front, sides* and *rear.* That's because the Monitor-type cab is fully enclosed with large windows and is placed *high on top of the crane.* The operator is *above* all machinery or braces that might obstruct his vision. He can speedily, accurately, and efficiently load or unload from high-walled railroad cars because he can look *right into* the car. Hoist and boom drums are in full view. To further insure good visibility, all Brownhoist cranes are equipped with the clear-vision boom that permits the operator to look right through it with unobstructed visibility.

In addition to full-circle visibility, the Monitor-type cab is designed to afford the utmost in comfort and safety including doors on both sides and 14" safety clearance between car and rotating upperworks. There is a soundproof partition between the operator and machinery — provision for opening all windows and doors for full ventilation — all operating controls are easily reached from a comfortable, well raised seat. Write today for more facts complete with specifications.

140

BROWNHOIST BUILDS BETTER CRANES

INDUSTRIAL BROWNHOIST CORPORATION • BAY CITY, MICHIGAN • **DISTRICT OFFICES:** New York, Philadelphia, Cleveland, San Francisco, Canadian Brownhoist Ltd., Montreal, Quebec. **AGENCIES:** Detroit, Birmingham, Houston, Los Angeles, Portland, Seattle, Spokane.

New Transfer Line

(Concluded from Page 89)

drilling heads. They are clamped in position from the top by a cam-actuated plunger. Drilled holes naturally are of varying depths and this is controlled by the length of the drill used and the position of the chuck. Each station has individual control buttons, while a master panel provides control of all three stations. Fig. 2 shows cases coming off the first of these transfer units.

Pancake Machine — Before entering the second transfer-type drilling set-up, angular holes in the bottom face are drilled in what has been dubbed a "pancake" machine—a Baush six-station indexing-type horizontal drilling machine, one station being for load and unload.

A second Baush transfer-type two-way horizontal drilling machine comprises five units with tools moving in from both sides on four of them and from one side only on the fifth. Just ahead of the fifth station, the case is rolled over 90 degrees to permit tapping holes in the bottom face. There are two heads on this unit, one with 15 and the other with nine spindles.

The first four stations drill, bore, ream, countersink and tap all holes in side faces.

Boring is done at the first station, with three bars on one side, two on the other. The second station does drilling, eleven spindles on one side, seven on the other. The third station has 26 drilling spindles, the fourth 17 tapping spindles. Fig. 3 is a view from the discharge end of this transfer unit, the tapping unit for the bottom face being in the immediate foreground.

Tool Board Control — With this large number of drills, taps, reamers, etc., all operating simultaneously and continuously, tool breakage must be spotted and remedied quickly. To aid in this, each transfer unit has its own "tool board" on which a complete set of replacement tools is mounted and identified clearly. Should one drill break, its replacement can be spotted immediately and rushed into the chuck with a minimum of delay.

The tool boards also are provided with an assortment of gages, so that the various tools can be set up accurately well in advance of the time they may be needed. This has been a major factor in avoiding costly down time of these integrated machines. Cycling and operation of the units is completely automatic, the only labor requirement being an observer to check the functioning. All drills and taps are run for approximately two weeks, one shift a day, before replacement. Milling cutters, on the other hand, are changed about twice a week.

Inspection checks are made after every major operation throughout the line, one piece out of every ten being pulled off for measurement.

Trial Run — Before installation at Detroit Gear, the complete equipment was set up at Baush Machine Tool Co., Springfield, Mass., for a lengthy trial run.

Following the Baush drilling machines, the cases are transferred to Heald Bore-Matic machines for precision boring and chamfering the larger holes. Oil ring grooves are cut in the two side piston holes. Finally the front and rear faces are finish turned in a Bullard 14-inch Continumatic vertical turret lathe, with three spindles. Shown in Fig. 4, this is an unusual type of machine, the parts being located on the finish bores over vertical spindles with expanding air clamps to hold them firmly. A single-point tool is mounted in a slide above and below the case, and as the machine indexes the tools advance to cutting position.

The work rotates at about 500 rpm, with the tools retracting automatically at the front loading and unloading station. The turning is done dry, with chips falling out a chute at the rear of the lathe. A feature of the machine is an automatic oiling system, installed by engineers of Detroit Gear. Control is through a hand lever positioned alongside one station. Several strokes of this lever supplies oil to all points on the machine where lubrication is needed.

End faces are turned flat and square with the axis of the bores, within 0.002-inch total indicated runout. Rear face is held to 0.435-0.439-inch from the inside face of the small bore, and overall length to 9.998-10.002 inches.

30 Cents Per Part—Finished cases move on a conveyor through a washer and are blown dry. Total unit cost of the entire machining sequence is less than 30 cents, although this involved an investment in equipment of some $750,000.

There is a transmission extension case which must be processed separately and hooked up with the main case in assembly. Operations are similar to those on the main case, although not as numerous. A feature piece of equipment on the extension case machining line is a Cross double-cycle transfer-type drilling machine which drills, reams, counterbores, countersinks and taps all holes. Between the two cycles of this unit, the pieces are put through a Cincinnati duplex mill with 18-inch feed, operating at 450 rpm, which semi-finish mills the sides of the case.

Indicated machining cost of the extension case is about 18 cents and they, of course, are processed at the same rate, 72 an hour, as the main case.

The entire machine setup reflects the ingenuity of equipment builders in perfecting automatic, precision machine tools, integrated so that multiple operations can be carried out at high speed with the very least manual attention. It is the only way to meet cost demands of today's high-volume automotive requirements.

Chemical Blacking Process

STAINLESS steels, cast iron, malleable iron as well as SAE or any other steels, may be blacked by a new process, developed by A. F. Holden Co., New Haven, Conn. Weight of chemicals required per gallon of water solution is 3 pounds. It is said that the process may be used in equipment already installed, the only variance in the process being the use of a new chemical cleaner which prepares the metal surface to obtain a uniform black.

CALENDAR OF MEETINGS

† *Denotes first listing in this column*

July 12-14, American Society of Civil Engineers: Summer convention, Toronto, Ont. Society headquarters are at 33 W. 39th St., New York.

July 12-14, American Home Laundry Manufacturers' Association: Meeting, Atlantic City, N. J.

July 28, Malleable Founders' Society: Western sectional meeting, Drake Hotel, Chicago. Society headquarters are in the Union Commerce Bldg., Cleveland.

Aug. 7-19, First U. S.-International Trade Fair: Coliseum, International Amphitheater and Navy Pier, Chicago. Fair headquarters are in Congress Hotel, Chicago.

Aug. 14-16, Society of Automotive Engineers: West coast meeting, Biltmore Hotel, Los Angeles. Society headquarters: 29 W. 39th St., New York 18.

Aug. 16-18, Third Western Packaging and Materials Handling Exposition: Civic Auditorium, San Francisco. Additional information from Clapp & Poliak Inc., 341 Madison Ave., New York 17.

Sept. 5-9, American Chemical Society: National Chemical Exposition, Chicago Coliseum. Sponsored by Chicago Section, ACS. 86 E. Randolph St., Chicago 1.

Sept. 11, Society of Automotive Engineers: Tractor meeting, Hotel Schroeder, Milwaukee. Society headquarters are at 29 W. 39th St., New York.

Sept. 11, Society of Automotive Engineers: Aeronautic meeting and aircraft engineering display, in Los Angeles. Society headquarters are at 29 W. 39th St., New York.

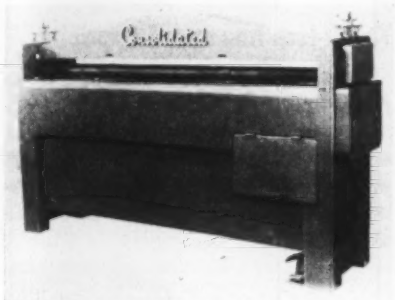
Sept. 13-15, Porcelain Enamel Institute: Twelfth Annual Forum, University of Illinois, Urbana, Ill. Institute is located at 1010 Vermont Ave., N.W., Washington 5, D. C.

†**Sept. 13-16, National Association of Foremen:** 27th annual convention, Statler Hotel, Buffalo, N. Y. Association headquarters: 321 W. First St., Dayton 2, O.

New Products and Equipment

Straightens Sheet Metals

Straightening, rolling or form rolling of sheet stainless steel, aluminum, zinc, copper, cold and hot rolled steel and other metals up to 18 gage is possible with the straightening machine built by Consolidated Equipment Co., 2165 W. Wabansia Ave., Chicago 47, Ill. Made in three sizes



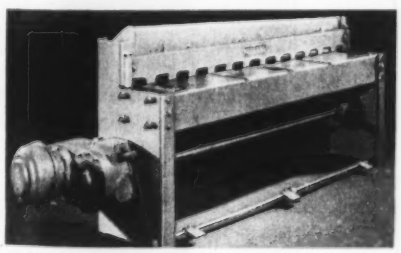
for sheets up to 36, 60 and 72 inches wide, the machine has five rollers.

Adjustment is made quickly for different materials and types of rolling. It is equipped with a variable speed transmission to permit synchronizing the speed for production work.

Check No. 1 on Reply Card for more Details

Shear for Small Shops

Designed to give the small sheet metal shop a power squaring shear at a reasonable price, a Series One shear, made by Niagara Machine & Tool Works, 637 Northland Ave., Buffalo 11, N. Y., is fabricated from formed steel plates. Cutting lengths of 3, 4, 5 and 6 feet are available,



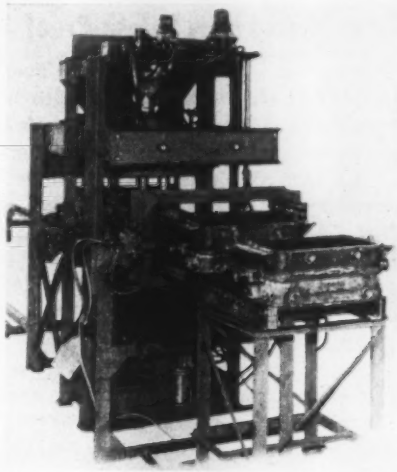
the latter being capable of cutting lengths of 14-gage sheet metal at 85 cuts per minute.

Four cutting edge knives are used to reduce regrinding time. Gaging is through front, side squaring and ball bearing, self-measuring back gages. Available is an electric foot switch for remote control operation. A multiple jaw sleeve clutch is incorporated in the design. Transmission is completely enclosed, the clutch, gearing, flywheel and detent operating in a bath of oil. Drive and main shaft operate on antifriction bearings.

Check No. 2 on Reply Card for more Details

High Production Mold Machine

Producing up to 300 drag molds per hour is the series 2000 automatic mold machine, introduced by Spo Inc., 6494 Grand Division Ave., Cleveland 5, O. Designed to operate on standard 80 psi line pressure, unit is controlled by solenoid valves. In production operation, empty flasks are fed into the Mold-O-Matic machine by a standard conveyor sys-



tem. Cycle begins when the overhead metering box assembly is filled from the machine's hopper and an empty flask is pulled onto the strip frame.

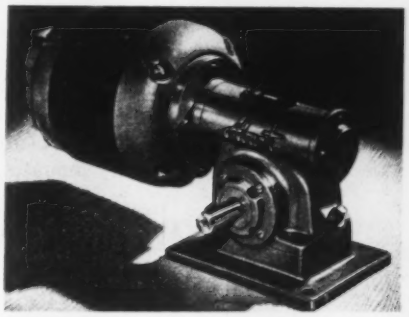
Flask is lowered to the pattern, positioned, then charged and given a predetermined jolt. As the metering box assembly returns to refill and pick up another flask, the squeeze operation is accomplished. Stripping begins as the squeeze head retracts. Varying stripping speed prevents damage to intricate molds. When strip is completed, metering box assembly moves into position with another flask and pushes the flask containing the completed mold toward the roll-over mechanism. Either drag or cope molds may be handled.

Check No. 3 on Reply Card for more Details

Right Angle Gearmotor Line

Shafts of special tough alloy steel of 180,000 to 320,000 pounds tensile strength are used in the right angle type single-phase and three-phase model gearmotors announced by Abart Gear & Machine Co., 4828 W. 16th St., Chicago 50, Ill. Heavy duty type motors are NEMA rated. Horsepower ranges from 1/6 to 5 and ratios from 5 4/5:1 to 100:1 and output speeds from 17.5 to 302 rpm. Other speeds and ratios are available on special order.

Compact gear motors are mounted on a single surface and may be placed in any position. Torques are

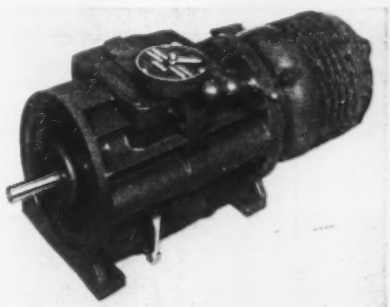


taken by semisteel gear case and gears are of nickel bronze. Spaced ball bearings have Neoprene seals and insulation is long-life baked varnish. Enclosures offered include drip-proof, totally enclosed or fan-cooled. Brakes are optional.

Check No. 4 on Reply Card for more Details

Variable Speed Reducer

Speed reduction and infinite speed variation are combined in a single, compactly-housed transmission, the model 300, developed by Graham Transmissions Inc., 3754 N. Holton St., Milwaukee 12, Wis. Accuracy of speed control over the entire range is a feature. Speed is set by either lever or micrometer control. Several types of remote control are available:



Mechanical, electrical and pneumatic.

Unit is offered in sizes from 1½ to 3 hp without motor or with built-in motors of drip-proof, totally enclosed or explosion-proof types. Transmission may be had with built-on reduction or step-up gearbox, whereby need for auxiliary gearing is avoided. Also offered is a reversing model

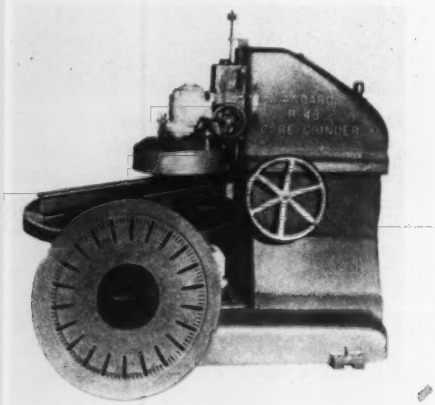
delivering all speeds forward and reverse with change of input rotation. For centrifugal pump or blower applications, a 5 hp unit may be obtained.

Check No. 5 on Reply Card for more Details

For Fast Core Grinding

Standard Pattern Works, 6771 E. McNichols Rd., Detroit 12, Mich., is building a 48-inch diameter table core grinder for fast and accurate core grinding. Mounted on large roller bearings and completely protected against dust, the table's rotation can be controlled either manually or by an adjustable speed reducer which may be located below the table.

Among the relatively few parts of the unit is a ¾-hp motor, mounted



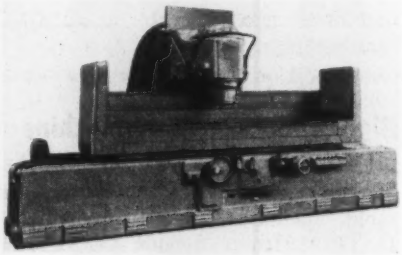
on a counter-balanced sliding head which furnishes direct power to the grinding wheel. It may be adjusted rapidly in any vertical setting. Quick change of wheels is easily accomplished. The speed reducer has a 1 hp motor.

Check No. 6 on Reply Card for more Details

Sliding Column Surface Grinder

With the Hydrovert sliding column vertical surface grinder, built by Thompson Grinder Co., Springfield, O., it is possible to machine wide flat surfaces without limitations ordinarily determined by the size of the grinding wheel. It is also possible to grind close to shoulders and guide pins on dies. Flat surfaces may be ground in various steps or levels, regardless of interference of other obstacles.

Column travels back and forth on a subbase, giving either an intermittent feed at each reversal of the table or a continuous cross feed, both from a single lever operation. It is equipped with hydraulic hand cross feed for rough setting of the wheel and grinding close to obstructions or shoulders. Size ranges from 16 x 24 x 48 inches to 48 x 24 x 192 inches. Coolant is applied to the inside and outside of the wheel. Ma-



chine can be equipped with automatic downfeed, magnetic chucks, rectifiers and Neutrol demagnetizing switches.

Check No. 7 on Reply Card for more Details

Gear Motors Now Splash-Proof

Designed for horizontal floor mounting and suited for locations which are subject to direct streams of water or other liquids are Slo-Speed geared electric power drives developed by Sterling Electric Motors Inc., Los Angeles, Calif. Units are built with single or double reduction gears, providing speeds from 780 down to 20 rpm, in ratings of ½ to 15 hp.

Construction utilizes one piece cast iron stator frames and one piece cast end bells with integrally cast baffles. End bell design permits free passage of ventilating air through the motor and keeps out splashing liquids. Seals are incorporated on shaft ends.

Check No. 8 on Reply Card for more Details

For Straight Bending Only

Available in all sizes from 4 to 10 feet and in 18 through 12-gage capacities is a line of bending brakes

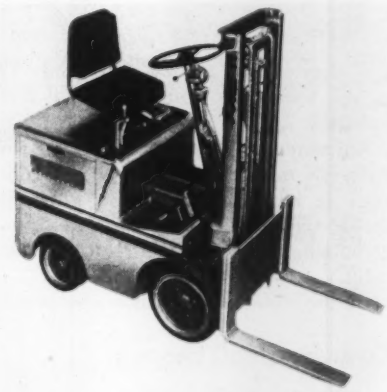
developed by Whitney Metal Tool Co., Rockford, Ill. Use is limited to straight bending only, no provision being made for box and pan fingers used with other models made by the company. Construction includes triangular box sections on upper and lower beams or jaws and apron, further stiffened with rod trusses.

Dimensions of inset drawing show wide gripping area and indicate arrangements for making reverse bends as close as ¼-inch by removing inset plate on apron. Unitized design appears in the framework and in castings supporting clamp mechanism and apron pivots. These are identical on all sizes of brakes, making possible easy replacement for wear or damage.

Check No. 9 on Reply Card for more Details

Truck Has Increased Capacity

Use of a separate motor to provide power for the hydraulic pump results in an 80 per cent increase in lifting and tilting speed of the battery-powered Trucloader, 1000-pound forklift announced by Industrial Truck



Division, Clark Equipment Co., Battle Creek, Mich. Automatically acceleration control is standard equipment. Direction of travel cannot be changed until motor comes to a full stop. When the driver leaves the seat, directional control lever locks in neutral and the dead man brake is applied, both automatically.

The lift control lever operates in the same direction as the action desired. Uprights of rolled alloy steel provide added strength to lift assembly. Lift heights are available in a range from a standard of 84 inches, with overall height of 61 inches, to 130 inches and an overall height of 84 inches.

Check No. 10 on Reply Card for more Details

Condition Your Sand

Cutting and mixing foundry molding sand, plus imparting a mulling action, are functions of a portable sand conditioning unit made by American Wheelabrator & Equipment Corp., Mishawaka, Ind. Sand is left fluffy, aerated and cool by the Sand-

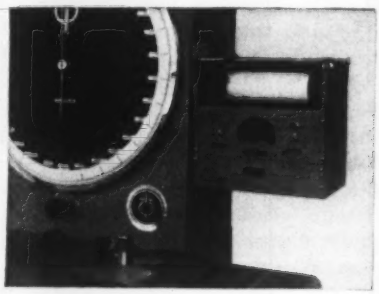
master which also magnetically separates, screens and piles the material. The usually difficult to handle synthetic sands are quickly conditioned with less bond additions.

Reversible scrapers eliminate the necessity of manual trimming. Machine employs hydraulic steering and is easily maneuverable. It can be supplied in either gas or electric drive with variable speeds from 4 to 25 fpm for cutting and screening and 25 or 100 fpm when piling or traveling from floor to floor.

Check No. 11 on Reply Card for more Details

Wide Range Electronic Recorder

Tinius Olsen Testing Machine Co., 1096 Easton Rd., Willow Grove, Pa., is offering an electronic recorder with a single multiposition switch which selects magnification of strain from 1000:1, 500:1, 250:1, 100:1, 50:1, 20:1 and 10:1 without gear changes. Operator changes from one magnification to another during test without affecting the values of test data.



Pen repositions itself so operator knows what magnification is being used. Unit may be used with either an extensometer or compressometer for recording tension, compression or transverse test data. The load scale of the unit is spread over 182 inches for each range.

Check No. 12 on Reply Card for more Details

Chain Hoists Totally Enclosed

Improved braking power and longer brake life are claimed for electric-roller chain hoists made by Whiting Corp., Harvey, Ill., with use of a spring-set, shoe-type motor brake in which lining is bonded to the shoe. Pull cord is in the center of the hoist frame to eliminate tendency to tip when control cord is pulled. The double worm-gear drive is totally enclosed.

Hoist control switch wiring and motor brake are easily accessible for inspection and repair. Alignment of motor is insured by locking the adaptor casting into position. Hoists are available in ¼, ½, 1 and 2-ton capacities. Largest has a built-in

That PRE-COAT fits you to a "T" Plunkett!

"T" for THOMAS, of course . . . and for pre-coated *THOMAS STRIP. This ready-to-use strip steel is manufactured to fit your fabricating equipment to a "T". And, it comes to you already* pre-coated *with special finishes to make your products more Teasing, Tantalizing and Tempting to the trade.*

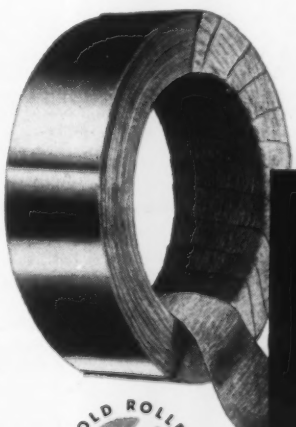
★ ★ ★

Try nickel-coated THOMAS STRIP, for example, when you want a sparkling product finish with rich lustre and deep reflectivity . . . when you want to retard corrosion, tarnishing and staining of parts in process . . . when you need increased resistance to oxidation at elevated temperatures, and resistance to scaling during heat treat.

You'll find that it really fits your production to a "T". The base steel, of course, is furnished *metallurgically right* for your products and processes. And, because nickel's strength, hardness and ductility approach those of mild steel, nickel-coated THOMAS STRIP is readily adaptable to a broad variety of fabricating methods . . . from simple stampings to deep draws.

Available natural, planished and buffed, nickel-coated THOMAS STRIP serves as your final product finish, saving you the costs of operating plating lines. It has many functional applications for products in which, due to unusual manufacturing conditions, oxidation and scaling must be overcome.

Thomas metallurgists will be glad to demonstrate nickel-coated THOMAS STRIP—and other special Thomas finishes—for your product, in your plant, at your convenience. Write us for samples and full information.



THE THOMAS STEEL COMPANY
WARREN, OHIO
Specialists in Cold Rolled Strip Steel

Thomas Strip
SPEEDS PRODUCTION . . . CUTS COSTS

COLD ROLLED STRIP STEEL

Electrocoated with Chromium, Nickel, Copper, Zinc and Brass • Hot Dipped Tin and Lead Alloy • Lacquer Coated in Colors • Alloy Strip Steel • Uncoated Strip Steel • Produced to Your Specifications.

hook which requires 2½ inches less head room.

Check No. 13 on Reply Card for more Details

Sorts Metal Automatically

High speed, nondestructive quality control and sorting of metal parts of any size by their metallurgical characteristics is possible with the Cyclograph, developed by J. W. Dice Co., 1 Engle St., Englewood, N. J. Operating on magnetic principles, it rapidly sorts by mixed analysis of the part, structure, hardness, case depth, brittleness or almost any metallurgical difference.

Testing speeds of 1 to 5 parts per second can be attained when parts are sent through the test coil on a belt conveyor or other fast feeding means. Both single level and two level sorting are possible. Instrument can be used to reject only parts having a low reading or to reject both above and below an established acceptable range.

Check No. 14 on Reply Card for more Details

Load Supported on Dead Axle

Dual pneumatic tires are mounted on a dead axle which supports chassis and fork load, removing differential drive from severe service, on the heavy-duty Liftruks offered by Silent Hoist & Crane Co., Brooklyn 20, N. Y. Trucks are available in 5, 7½ and 10 ton capacities.

Lifting and tilting hydraulic units are oversize, operating at low fluid pressure. Lifting guides are interlocked with each other to provide perfect alignment and equal distribution of fork loads. With liberal ground clearance it is possible to operate under adverse terrain conditions. Various attachments, such as shovels, special forks and fork extensions, are available.

Check No. 15 on Reply Card for more Details

• • •

RESISTS ABRASION: For resistance against erosion and abrasion in the control and tight shutoff of either slurries or dry pulverulent materials in air transport pipe lines, 50-pound valve No. 737, developed by R-S Products Corp., Philadelphia 44, Pa., can be completely rubber lined. It is available in sizes from 2 to 72 inches in the temperature range from minus 40° F to plus 275° F.

Check No. 16 on Reply Card for more Details

PORTABLE CUTTERS: Three new portable cutters are announced by H. K. Porter Inc., Somerville, Mass. The carbide edge cutters are for cutting extremely hard materials such as stainless steel, rods, wire, etc., up to ⅜-inch diameter; hot metal cutters for cutting hot steel bars, rods and wire up to ⅝-inch diameter; metal lath cutters for cutting expanded metal and heavy gage metal lath.

Check No. 17 on Reply Card for more Details

SAFETY SWITCHES: Square D Co., Detroit, Mich., introduces a new 100 and 200 amp safety switch line. Type A switches are for heavy duty industrial service and types C and D for standard industrial duty and general purpose duty.

Check No. 18 on Reply Card for more Details

PUMPS LIQUIDS: Developed for laboratory scale pumping of materials which are liquid at room temperature, the No. 1000 Corson-Cerveny Micro-Bellows pump offered by Research Appliance Co., Pittsburgh 9, Pa., may be adapted to pump low boiling liquids such as pentane and melted solids and viscous materials. It is a pulsation type pump that delivers a constant rate over long periods of time.

Check No. 19 on Reply Card for more Details

METAL FINISH: Atomite, a metal coloring process developed especially to provide a Blacker 'n Black rust resisting protective finish for metal stampings, screw machine products, wire products, springs, castings, etc., is announced by Atomite Black Co., Chicago 6, Ill. Its low electrical resistance prevents arcing and flashing when welded or hot crimped.

Check No. 20 on Reply Card for more Details

PATCHES FLOORS: Masterquick, an iron asphalt patching material for patching or resurfacing of worn concrete floors is announced by Master Builders Co., Cleveland 3, O. It can be laid in any thickness from ¼-inch down to feather edge. Floor is ready for use 24 to 36 hours after application. The ductile iron aggregate minimizes ribbing and rolling under traffic impact.

Check No. 21 on Reply Card for more Details

PICKS UP FERROUS MATERIALS: A new permanent magnet clean-up unit designed for use on any hard surfaced area where nails, bolts and scattered ferrous materials must be removed from floors, is available from F. W. Shrader Co., Culver City, Calif. It is made in two models.

Check No. 22 on Reply Card for more Details

DETERMINES CORE HARDNESS: Gordon-Campbell core hardness tester, announced by Claud S. Gordon Co., Chicago 16, Ill., measures the core surface hardness by showing on a direct-reading graduated micrometer dial, the depth to which an abrading point enters the material during three revolutions under a constant force. The corresponding hardness value for depth of penetration is found from the table of Gordon-Campbell core hardness numbers.

Check No. 23 on Reply Card for more Details

PROVIDES AUTOMATIC CONTROL: A new electronic timer that provides automatic control of operation, limit and sequence timing for many industrial processes is announced by General Electric's Control Divisions, Schenectady 5, N. Y. It is available in three time ranges: 0.06-1.2 seconds, 0.6-12 seconds and 6-120 seconds.

Check No. 24 on Reply Card for more Details

HEAT EXCHANGERS: Series 240A Karbate brand impervious graphite shell and tube heat exchangers, developed by National Carbon Division, Union Carbide & Carbon Corp., New York 17, N. Y., provide 71 square feet of heat exchange surface. Single, double or four pass routing of tube side fluid is effected by a simple change of fixed and floating and cover assemblies.

Check No. 25 on Reply Card for more Details

ADJUSTS CHAIN: American Chain Division of American Chain & Cable Co. Inc., York, Pa., introduces the Acco sling chain adjuster. The device permits lifting an object at any angle desired. By shifting the chain in the pocket wheel, one leg is made longer and the other shorter. The chain locks and load cannot shift.

Check No. 26 on Reply Card for more Details

CORROSION-PROOF TUBING: Dekoron tubing, announced by Samuel Moore & Co., Mantua, O., is a corrosion-proof instrument tubing made of metal with a 1/32-inch coating of extruded thermoplastic. Plastic coating is immune to moisture, salt air, oils, acids and alkalies. Available in ¼ and ⅜-inch diameters, tubing can be bent easily.

Check No. 27 on Reply Card for more Details

FOR MORE INFORMATION
on the new products and equipment in this section, fill in a card. It will receive prompt attention.

Market Summary

HEAVY DEMAND that has kept steel producing plants operating at or above capacity may become even greater in the next few weeks.

That prospect develops from civilian reaction to U. S. military action in Korea. Remembering shortages and allocations of the last war, many people have rushed into the nation's salesrooms to buy or place orders for automobiles, appliances and other goods that might become restricted in supply in event of a worsening of the international picture.

This buying, being superimposed on an already heavy demand for hard goods, can't help but be felt all the way back through manufacturer to steel producer, if military necessity does not interfere with peacetime industrial operating schedules.

DEMAND— Steel consumption is currently down somewhat because of metalworking plants' summer vacations for employees but there is no let-up in pressure for steel; metalworking plants are sure they will need all the steel they will be able to get.

As a result steel producers have all the orders they care to book for all major products. With the automobile industry—the nation's No. 1 consumer of steel—at breakneck production pace its requirements of hot and cold-rolled carbon steel sheets and strip continues to keep those products under the most intense pressure for delivery.

Demand for light gage plates is strong in most areas, and inquiries for heavier gages are up.

Stringency in hot-rolled carbon bars is increasing, due in large part to speculative buying. Even the larger sizes are in greater demand. Producers of cold-finished bars also are feeling the increased tempo in bar buying.

Standing out as the major product on which demand is lightest is structural shapes.

WAREHOUSE— Metalworking plant vacations have lightened the demand on warehouses for spot deliveries of steel but the overall need for major products exceeds warehouses' supplies.

PRODUCTION— Even though steel demand exceeds supply the observance of the Fourth of July and the taking of summer vacations in industry have become firmly enough established to cut the steel industry's production rate. In the week ended July 8, steelmaking operations dropped below theoretical capacity for the first time since mid-April. A drop of 6½ percentage points put the estimated national ingot making rate at 95 per cent of capacity.

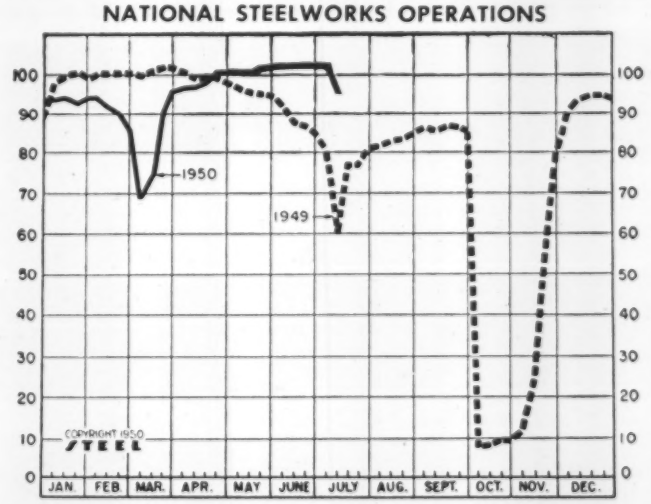
PRICES STEADY— Price changes last week were confined chiefly to upward revisions by additional companies in quotations on stainless steel products and galvanized pipe. On finished steel, STEEL's weighted price index held at 156.69 per cent, compared with 152.80 a year ago. STEEL's price composite held at $94.36.

PIG IRON— Merchant pig iron demand remains moderate, for many foundries are either on a short work-week or taking summer vacations. Some foundries, however, are noticing an increase in orders. With steel production at a high level the consumption of basic iron is heavy. STEEL's price composites on merchant pig iron were unchanged last week from the preceding week. They are: No. 2 foundry, $46.47; basic, $45.97; and malleable, $47.27.

SCRAP— Weakness continuing in the scrap market last week dropped STEEL's price composite on steelmaking grades to $36.83 from the preceding week's $37.50.

NEW PRICING METHOD— In the nonferrous field a move of significance was announcement last week by Kennecott Copper Corp. that it is adopting a uniform delivered price basis for all sales of its domestically produced copper for delivery in the United States. The new system is effective with sales for August delivery. This gives all buyers opportunity to buy at the same price quoted to consumers in the Connecticut valley. Heretofore, buyers outside the valley had to pay freight.

NATIONAL STEELWORKS OPERATIONS



DISTRICT INGOT RATES

Percentage of Capacity Engaged at Leading Production Points

	Week Ended July 8	Change	Same Week 1949	Same Week 1948
Pittsburgh	95	— 5*	53.5	79.5
Chicago	103.5	+ 1*	68.5	88
Eastern Pa.	96.5	— 2*	68	85
Youngstown	105	— 2	50	94.5
Wheeling	93	— 7	68	81.5
Cleveland	52	—18*	64.5	97.5
Buffalo	104	0	85	101
Birmingham	100	0	100	100
New England	60	—30	38	82
Cincinnati	90	—12	72	102
St. Louis	78	—11	75.5	78
Detroit	104	— 5	91	101
Western	98	— 1	79.5	..
Estimated national rate	95	— 6.5	60	89

Based on weekly steelmaking capacity of 1,906,267 net tons for 1950; 1,843,516 net tons for 1949; 1,802,476 net tons for 1948.

* Change from revised rate.

News Summary—p. 53 Production-Engineering News—p. 83

Composite Market Averages

	July 6 1950	Week Ago	Month Ago	Year Ago	5 Yrs. Ago
FINISHED STEEL INDEX, Weighted:					
Index (1935-39) av.=100)	156.69	156.69	156.25	152.80	101.78
Index in cents per lb. ..	4.245	4.245	4.233	4.139	2.757
ARITHMETICAL PRICE COMPOSITES:					
Finished Steel, NT	$94.36	$94.36	$94.32	$91.82	$58.27
No. 2 Fdry. Pig Iron, GT	46.47	46.47	46.47	46.07	24.67
Basic Pig Iron, GT	45.97	45.97	45.97	45.60	24.00
Malleable Pig Iron, GT..	47.27	47.27	47.27	47.27	25.29
Steelmaking Scrap, GT..	36.83	37.50	40.83	19.17	19.17

Weighted finished steel index based on average shipments and prices of the following 14 representative products during 5-year base period 1935-39: Structural shapes, plates, rails, hot-rolled and cold-finished bars, pipe, wire, nails, tin plate, hot and cold-rolled sheets, galvanized sheets, hot and cold-rolled strip. For complete explanation see STEEL, Sept. 19, 1949, p. 54.

Arithmetical steel price composite based on same products as the weighted finished steel index with the exception of rails, cold-finished bars, galvanized sheets and hot-rolled strip.

Basic and No. 2 foundry pig iron composites are based on average prices at Pittsburgh, Bethehem, Birmingham, Buffalo, Chicago, Cleveland, Granite City, Youngstown. Malleable composite based on same points, except Birmingham.

Steelmaking scrap composite based on average prices of No. 1 heavy melting steel at Pittsburgh, Chicago and Philadelphia.

Comparison of Prices

Comparative prices by districts, in cents per pound except as otherwise noted. Delivered prices based on nearest production point.

FINISHED MATERIALS

	July 6 1950	Week Ago	Month Ago	Year Ago	5 Yrs. Ago
Bars, H.R., Pittsburgh....	3.45	3.45	3.45	3.35	2.25
Bars, H.R., Chicago	3.45	3.45	3.45	3.35	2.25
Bars, C. F., Pittsburgh ...	4.10–15	4.15–15	4.10–15	4.00	2.65
Shapes, Std., Pittsburgh ..	3.40	3.40	3.40	3.25	2.10
Shapes, Std., Chicago	3.40	3.40	3.40	3.25	2.10
Plates, Pittsburgh	3.50	3.50	3.50	3.40	2.25
Plates, Chicago	3.50	3.50	3.50	3.40	2.25
Plates, Coatesville, Pa. ..	3.60	3.60	3.60	3.50	2.25
Plates, Sparrows Point, Md.	3.50	3.50	3.50	3.40	2.25
Plates, Claymont, Del. ...	3.60	3.60	3.60	3.50	2.25
Sheets, H.R., Pittsburgh..	3.35	3.35	3.35	3.25	2.20
Sheets, H.R., Chicago ...	3.35	3.35	3.35	3.25	2.20
Sheets, C.R., Pittsburgh ..	4.10	4.10	4.10	4.00	3.05
Sheets, C. R., Chicago	4.10	4.10	4.10	4.00	3.05
Sheets, C.R., Detroit	4.30	4.30	4.30	4.20	3.15
Sheets, Galv., Pittsburgh..	4.40	4.40	4.40	4.40	3.70
Strip, H.R., Pittsburgh ...	3.25–50	3.25–50	3.25	3.25	2.10
Strip, H.R., Chicago	3.25	3.25	3.25	3.25	2.10
Strip, C.R., Pittsburgh ...	4.15–50	4.15–50	4.15–50	4.00	2.80
Strip, C.R., Chicago	4.30	4.30	4.30	4.00–15	2.90
Strip, C.R., Detroit	4.35–95	4.35–95	4.35–95	4.20–25	2.90
Wire, Basic, Pittsburgh ..	4.50	4.50	4.50	4.15	2.75
Nails, Wire, Pittsburgh ...	5.30	5.30	5.30	5.15	2.90
Tin plate, box, Pittsburgh.	$7.50	$7.50	$7.50	$7.75	$5.00

SEMIFINISHED

Billets, forging, Pitts.(NT)	$63.00	$63.00	$63.00	$61.00	$42.00
Sheet bar, mill (NT)	58.00	58.00	58.00	67.00	36.00
Wire rods, 5/32-⅜", Pitts...	3.85	3.85	3.85	3.40	2.15

PIG IRON, Gross Ton

Bessemer, Pitts.	$47.00	$47.00	$47.00	$47.00	$25.50
Basic, Valley	46.00	46.00	46.00	46.00	24.50
Basic, del. Phila.	49.44	49.44	49.44	49.39	26.34
No. 2 Fdry, Pitts.	46.50	46.50	46.50	46.50	25.00
No. 2 Fdry, Chicago	46.50	46.50	46.50	46.25	25.00
No. 2 Fdry, Valley	46.50	46.50	46.50	46.50	25.00
No. 2 Fdry, del. Phila. ...	49.94	49.94	49.94	49.89	26.84
No. 2 Fdry, Birm.	42.38	42.38	42.38	39.38	21.38
No. 2 Fdry (Birm.)del.Cin.	49 08	49 08	49.08	45.43	25.06
Malleable, Valley	46.50	46.50	46.50	46.50	25.00
Malleable, Chicago	46.50	46.50	46.50	46.50	25.00
Charcoal, Lyles, Tenn. ...	60.00	60.00	60.00	66.00	33.00
Ferromanganese, Etna, Pa.	175.00	175.00	175.00	175.00	140.33*

* Delivered, Pittsburgh.

SCRAP, Gross Ton

No. 1 Heavy Melt. Pitts...	$40.00	$41.00	$46.00	$21.00	$20.00
No. 1 Heavy Melt. E. Pa..	33.00	34.00	36.50	17.00	18.75
No. 1 Heavy Melt. Chicago	37.50	37.50	40.00	19.50	18.75
No. 1 Heavy Melt. Valley.	41.50	41.50	44.75	18.50	20.00
No. 1 Heavy Melt. Cleve..	39.50	39.50	42.75	15.00	19.50
No. 1 Heavy Melt. Buffalo	39.00	39.00	42.00	19.25	19.25
Rails, Rerolling, Chicago..	47.50	47.50	52.50	27.75	22.25
No. 1 Cast, Chicago	44.50	44.50	48.50	27.50	20.00

COKE, Net Ton

Beehive, Furn., Connlsvl...	$14.25	$14.25	$14.25	$13.25	$7.50
Beehive, Fdry., Connlsvl...	15.50	15.50	15.50	15.75	8.25
Oven Fdry., Chicago	21.00	21.00	21.00	20.00	13.35

NONFERROUS METALS

Copper, del. Conn.	22.50	22.50	22.50	17.00	12.00
Zinc, E. St. Louis	15.00	15.00	14.50	9.00	8.25
Lead, St. Louis	10.80	10.80	11.80	11.85	6.35
Tin, New York	80.125	78.25	78.375	103.00	52.00
Aluminum, del.	17.50	17.50	17.50	17.00	15.00
Antimony, Laredo, Tex. ..	24.50	24.50	24.50	38.50	14.50
Nickel, refinery, duty paid.	48.00	48.00	48.00	40.00	35.00

Pig Iron

For key to producing companies, turn next page.
Minimum delivered prices do not include 3% federal tax.

PIG IRON, Gross Ton

	Basic	No. 2 Foundry	Malleable	Bessemer
Bethlehem,Pa. B2	$48.00	$48.50	$49.00	$49.50
Newark,del.	50.63	51.13	51.63	52.13
Brooklyn,N.Y.,del.	....	52.79	53.29	....
Birmingham District				
AlabamaCity,Ala. R2	41.88	42.38	....	....
Birmingham R2	41.88	42.38	....	....
Birmingham S9	41.88	42.38	....	....
Woodward,Ala. W15	41.88	42.38	....	....
Cincinnati,del.	....	49.08	....	....
Buffalo District				
Buffalo H1, R2	46.00	46.50	47.00	....
Tonawanda,N.Y., W12	46.00	46.50	47.00	....
N.Tonawanda,N.Y., T9	....	46.50	47.00	....
Boston, del.	55.26	55.76	56.20	....
Rochester,N.Y.,del.	48.63	49.13	49.63	....
Syracuse,N.Y.,del.	49.58	50.08	50.58	....
Chicago District				
Chicago I-3	46.00	46.50	46.50	47.00
Gary,Ind. C3	46.00	....	46.50	....
IndianaHarbor,Ind. I-2	46.00	....	46.50	....
So.Chicago,Ill. W14, Y1	46.00	46.50	46.50	....
So.Chicago,Ill. C3	46.00	....	46.50	47.00
Milwaukee,del.	47.89	48.39	48.39	48.89
Muskegon,Mich.,del.	....	51.98	51.98	....
Cleveland District				
Cleveland A7	46.00	46.50	46.50	47.00
Cleveland R2	46.00	46.50	46.50	....
Akron,del. from Cleve.	48.39	48.89	48.89	49.39
Lorain,O. N3	46.00	....	....	47.00
Duluth I-3	....	....	46.50	....
Erie,Pa. I-3	46.00	46.50	46.50	47.00
Everett,Mass. E1	....	50.50	51.00	....
Fontana,Calif. K1	52.00	52.50	....	....
Geneva,Utah G1	46.00	46.50	....	....
Seattle,Tacoma,Wash.,del.	....	54.20	....	....
Portland,Oreg.,del.	....	54.20	....	....
LosAngeles,SanFrancisco,del. ...	53.70	54.20	....	....
GraniteCity,Ill. M10	47.90	48.40	48.90	....
St.Louis,del. (incl. tax)	48.65	49.15	49.65	....
Ironton,Utah C11	46.00	46.50	....	....
Minnequa,Colo. C10	47.00	47.50	47.50	....
Pittsburgh District				
NevilleIsland,Pa. P6	46.00	46.50	46.50	47.00
Pitts.N.&S. sides, Ambridge, Aliquippa,del.	47.19	47.69	47.69	48.19
McKeesRocks,del.	46.95	47.45	47.45	47.95
Lawrenceville,Homestead, McKeesport,Monaca,del.	47.44	47.94	47.94	48.44
Verona,del.	47.90	48.40	48.40	48.90
Brackenridge,del.	48.13	48.63	48.63	49.13
Bessemer,Pa. C3	46.00	....	46.50	47.00
Clairton,Rankin,So.Duquesne,Pa. C3	46.00	....	....	....
McKeesport,Pa. N3	46.00	....	....	47.00
Sharpsville,Pa. S6	....	....	46.50	47.00
Steelton,Pa. B2	48.00	48.50	49.00	49.50
Steubenville,O. W10	46.00	....	....	....
Swedeland,Pa. A3	48.00	48.50	49.00	49.50
Philadelphia,del.	49.44	49.94	50.44	50.94
Toledo,O. I-3	46.00	46.50	46.50	47.00
Cincinnati,del.	51.01	51.51	....	....
Troy,N.Y., R2	48.00	48.50	49.00	49.50
Youngstown District				
Hubbard,O. Y1	46.00	46.50	46.50	....
Youngstown C3	46.00	....	....	47.00
Youngstown Y1	46.00	46.50	46.50	47.00
Mansfield,O.,del.	50.26	50.76	50.76	51.26

PIG IRON DIFFERENTIALS

Silicon: Add 50 cents per ton for each 0.25% Si over base grade, 1.75-2.25%.
Phosphorous: Deduct 38 cents per ton for P content of 0.70% and over.
Manganese: Add 50 cents per ton for each 0.50% manganese over 1%, or portion thereof.
Nickel: Under 0.50% no extra; 0.50-0.74%, incl., add $2 per ton and each additional 0.25%, add $1 per ton.

BLAST FURNACE SILVERY PIG IRON, Gross Ton

(Base 6.00-6.50% silicon; add $1 for each 0.5% Si to 11.50%)

Jackson,O. G2, J1	$57.00
Buffalo H1	58.25

ELECTRIC FURNACE SILVERY PIG IRON, Gross Ton

(Base 14.01-14.50% silicon; add $1 for each 0.5% Si to 18%; $1 for each 0.5% Mn over 1%; $1 for 0.045% max. P)

NiagaraFalls,N.Y. P15	$71.50
Keokuk, Iowa, Openhearth & Fdry, frt. allowed K2	77.00
Keokuk, Iowa, OH & Fdry., 12½ lb. piglets, frt. allowed K2.	82.00
Wenatchee, Wash., OH & Fdry., frt. allowed K2	77.00

CHARCOAL PIG IRON, Gross Ton

(Low phos. semi-cold blast; differential charged from silicon over base grade; also for hard chilling iron Nos. 5 & 6)

Lyles,Tenn. T3	$60.00

LOW PHOSPHOROUS PIG IRON, Gross Ton

Cleveland, intermediate, A7	$51.00
Steelton,Pa. B2	54.00
Philadelphia delivered	57.00
Troy,N.Y. R2	54.00

(Material in this department is protected by copyright and its use in any form without permission is prohibited)

Semifinished and Finished Steel Products

Mill prices as reported to STEEL July 6, 1950; cents per pound except as otherwise noted. Changes shown in italics. Code numbers following mill points indicate producing company; key on next two pages.

INGOTS, Carbon, Forging (NT)
Detroit R7 ..... $50.00
Munhall,Pa. C3 ..... 50.00

INGOTS, Alloy (NT)
Detroit R7 ..... $51.00
Houston,Tex. S5 ..... 59.00
Midland,Pa. C18 ..... 51.00
Munhall,Pa. C3 ..... 51.00
So.Duquesne,Pa. C3 .. 51.00

BILLETS, BLOOMS & Slabs Carbon, Rerolling (NT)
Bessemer,Pa. C3 .... $53.00
Clairton,Pa. C3 ..... 53.00
Conshohocken,Pa. A3 .. 58.00
Ensley,Ala. T2 ..... 53.00
Fairfield,Ala. T2 ..... 53.00
Fontana,Cal. K1 ..... 72.00
Gary,Ind. C3 ..... 53.00
Johnstown,Pa. B2 ..... 53.00
Lackawanna,N.Y. B2.. 53.00
Munhall, Pa. C3 ..... 53.00
So.Chicago,Ill. C3 .... 53.00
So.Duquesne,Pa. C3 ... 53.00

Carbon, Forging (NT)
Bessemer,Pa. C3 .... $63.00
Buffalo R2 ..... 63.00
Canton,O. R2 ..... 63.00
Clairton,Pa. C3 ..... 63.00
Cleveland R2 ..... 63.00
Conshohocken,Pa. A3.. 65.00
Detroit R7 ..... 66.00
Ensley,Ala. T2 ..... 63.00
Fairfield,Ala. T2 ..... 63.00
Fontana,Calif. K1 .... 82.00
Gary,Ind. C3 ..... 63.00
Geneva,Utah G1 ..... 63.00
Houston,Tex. S5 ..... 71.00
Ind.Harbor,Ind. I-2 ... 63.00
Johnstown,Pa. B2 .... 63.00
Lackawanna,N.Y. B2.. 63.00
LosAngeles B3 ..... 82.00
Munhall,Pa. C3 ..... 63.00
Seattle B3 ..... 82.00
So.Chicago C3,R2,W14. 63.00
So.Duquesne,Pa. C3 .. 63.00
So.SanFrancisco B3 ... 82.00

Alloy (NT)
Bethlehem,Pa. B2 .... $66.00
Buffalo R2 ..... 66.00
Canton,O. R2, T7 .... 66.00
Conshohocken,Pa. A3.. 68.00
Detroit R7 ..... 66.00
Fontana,Calif. K1 .... 85.00
Gary,Ind. C3 ..... 66.00
Houston,Tex. S5 ..... 74.00
Ind.Harbor,Ind. Y1 ... 66.00
Johnstown,Pa. B2 .... 66.00
Lackawanna,N.Y. B2.. 66.00
LosAngeles B3 ..... 86.00
Massillon,O. R2 ..... 66.00
Midland,Pa. C18 ..... 66.00
Munhall,Pa. C3 ..... 66.00
Sharon,Pa. S3 ..... 66.00
So.Chicago C3,R2,W14. 66.00
So.Duquesne,Pa. C3 .. 66.00
Warren,O. C17 ..... 66.00
Youngstown Y1 ..... 66.00

ROUNDS, SEAMLESS TUBE (NT)
Canton,O. R2 ..... $76.00
Cleveland R2 ..... 76.00
Gary,Ind. C3 ..... 76.00
Ind.Harbor,Ind. I-2 ... 76.00
Massillon,O. R2 ..... 76.00
So.Chicago,Ill. R2 .... 76.00
So.Duquesne,Pa. C3 .. 76.00

SKELP
Aliquippa,Pa. J5 ..... 3.25
Munhall,Pa. C3 ..... 3.15
Warren,O. R2 ..... 3.15
Youngstown C3, R2 .... 3.15

WIRE RODS
AlabamaCity,Ala. R2 .. 3.85
Buffalo W12 ..... 3.85
Cleveland A7 ..... 3.85
Donora,Pa. A7 ..... 3.85
Fairfield,Ala. T2 ..... 3.85
Houston,Tex. S5 ..... 4.25
Ind.Harbor,Ind. Y1 .... 3.85
Johnstown,Pa. B2 ..... 3.85
Joliet,Ill. A7 ..... 3.85
LosAngeles B3 ..... 4.65
Minnequa,Colo. C10 .... 4.10
Monessen,Pa. P7 ..... 3.85
No.Tonawanda,N.Y. B11. 3.85
Pittsburg,Calif. C11 ... 4.50
Portsmouth,O. P12 .... 3.85
Roebling,N.J. R5 ..... 3.95
So.Chicago,Ill. R2 ..... 3.85
SparrowsPoint,Md. B2 .. 3.95
Sterling,Ill.(1) N15 .... 3.85
Struthers,O. Y1 ..... 3.85
Torrance,Calif. C11 .... 4.65
Worcester A7 ..... 4.15

BEARING PILES
Munhall,Pa. C3 ..... 3.40
So.Chicago,Ill. C3 ..... 3.40

STRUCTURALS

Carbon Steel Stand. Shapes
AlabamaCity,Ala. R2 .. 3.40
Aliquippa,Pa. J5 ..... 3.40
Bessemer,Ala. T2 ..... 3.40
Bethlehem,Pa. B2 ..... 3.45
Clairton,Pa. C3 ..... 3.40
Fairfield,Ala T2 ..... 3.40
Fontana,Calif. K1 ..... 4.00
Gary,Ind. C3 ..... 3.40
Geneva,Utah G1 ..... 3.40
Houston, Tex. S5 ..... 3.80
Ind.Harbor,Ind. I-2 .... 3.40
Johnstown,Pa. B2 ..... 3.45
KansasCity,Mo. S5 .... 4.00
Lackawanna,N.Y. B2 .. 3.45
LosAngeles B3 ..... 4.00
Minnequa,Colo. C10 .... 3.75
Munhall,Pa. C3 ..... 3.40
Niles,Calif.(22) P1 .... 4.02
Phoenixville,Pa. P4 .... 3.30
Portland,Oreg. O4 ..... 3.90
Seattle B3 ..... 4.05
So.Chicago,Ill. C3, W14. 3.40
So.SanFrancisco B3 .... 3.95
Torrance,Calif. C11 .... 4.00
Weirton,W.Va. W6 .... 3.40

Alloy Stand. Shapes
Clairton,Pa. C3 ..... 4.05
Fontana,Calif. K1 ..... 5.25
Munhall,Pa. C3 ..... 4.05
So.Chicago,Ill. C3 ..... 4.05

H.S., L.A. Stand. Shapes
Aliquippa,Pa. J5 ..... 5.15
Bessemer,Ala. T2 ..... 5.15
Bethlehem,Pa.(14) B2 .. 5.20
Clairton,Pa. C3 ..... 5.15
Fairfield,Ala. T2 ..... 5.15
Fontana,Calif. K1 ..... 5.75
Gary,Ind. C3 ..... 5.15
Geneva,Utah G1 ..... 6.10
Ind.Harbor,Ind. I-2, Y1. 5.15
Johnstown,Pa. B2 ..... 5.20
Lackawanna,N.Y.(14)B2 5.20
LosAngeles B3 ..... 5.75
Munhall,Pa. C3 ..... 5.15
So.Chicago,Ill. C3 ..... 5.15
So.SanFrancisco B3 .... 5.70
Struthers,O. Y1 ..... 5.15

Wide Flange
Bethlehem,Pa. B2 ..... 3.45
Lackawanna,N.Y. B2 .. 3.45
Munhall,Pa. C3 ..... 3.40
So.Chicago,Ill. C3 ..... 3.40

H.S., L.A. Wide Flange
Bethlehem,Pa. B2 ..... 5.20
Lackawanna,N.Y. B2 .. 5.20
Munhall,Pa. C3 ..... 5.10
So.Chicago,Ill. C3 ..... 5.10

SHEET STEEL PILING
Ind.Harbor,Ind. I-2 .... 4.20
Lackawanna,N.Y. B2 .. 4.20
Munhall,Pa. C3 ..... 4.20
So.Chicago,Ill. C3 ..... 4.20
Weirton,W.Va. W6 .... 4.20

PLATES,High-Strength Low-Alloy
Aliquippa,Pa. J5 ..... 5.35
Bessemer,Ala. T2 ..... 5.35
Clairton,Pa. C3 ..... 5.35
Cleveland J5, R2 ..... 5.35
Conshohocken,Pa. A3 .. 5.35
Ecorse,Mich. G5 ..... 5.60
Fairfield,Ala. T2 ..... 5.35
Fontana,Calif. K1 ..... 5.95
Gary,Ind. C3 ..... 5.35
Geneva,Utah G1 ..... 5.35
Ind.Harbor,Ind. I-2, Y1. 5.35
Johnstown,Pa. B2 ..... 5.35
Munhall,Pa. C3 ..... 5.35
Pittsburgh J5 ..... 5.35
Sharon,Pa. S3 ..... 5.35
So.Chicago,Ill. C3 ..... 5.35
SparrowsPoint,Md. B2 .. 5.35
Warren,O. R2 ..... 5.35
Youngstown Y1 ..... 5.35

PLATES, Open-Hearth Alloy
Claymont,Del. W16 .... 4.50
Coatesville,Pa. L7 .... 4.50
Conshohocken,Pa. A3 .. 4.40
Fontana,Calif. K1 ..... 5.40
Gary,Ind. C3 ..... 4.40
Johnstown,Pa. B2 ..... 4.40
Munhall,Pa. C3 ..... 4.40
Sharon,Pa. S3 ..... 4.40
So.Chicago,Ill. C3 ..... 4.40
SparrowsPoint,Md. B2 .. 4.40

FLOOR PLATES
Cleveland J5 ..... 4.55
Conshohocken,Pa. A3 .. 4.55
Harrisburg,Pa. C5 ..... 4.55
Ind.Harbor,Ind. I-2 .... 4.55
Munhall,Pa. C3 ..... 4.55
So.Chicago,Ill. C3 ..... 4.55

PLATES, Ingot Iron
Ashland,c.l.(15) A10 ... 3.75
Ashland,lcl(15) A10 ... 4.25
Cleveland,cl R2 ..... 4.10
Warren,O.cl R2 ..... 4.10

PLATES, Wrought Iron
Economy,Pa. B14 ..... 7.85

PLATES, Carbon Steel
AlabamaCity,Ala. R2 .. 3.50
Aliquippa,Pa. J5 ..... 3.50
Ashland,Ky.(15) A10 .. 3.50
Bessemer,Ala. T2 ..... 3.50
Clairton,Pa. C3 ..... 3.50
Claymont,Del. W16 .... 3.60
Cleveland J5, R2 ..... 3.50
Coatesville,Pa. L7 ..... 3.60
Conshohocken,Pa. A3 .. 3.60
Ecorse,Mich. G5 ..... 3.75
Fairfield,Ala. T2 ..... 3.50
Fontana,Calif. K1 ..... 4.10
Gary,Ind. C3 ..... 3.50
Geneva,Utah G1 ..... 3.50
Harrisburg,Pa. C5 ..... 3.85
Houston,Tex. S5 ..... 3.90
Ind.Harbor,Ind. I-2,Y1.. 3.50
Johnstown,Pa. B2 ..... 3.50
Lackawanna,N.Y. B2 .. 3.50
Minnequa,Colo. C10 .... 4.30
Munhall,Pa. C3 ..... 3.50
Pittsburgh J5 ..... 3.50
Seattle B3 ..... 4.40
Sharon,Pa.S3 ..... 3.50
So.Chicago,Ill. C3, W14. 3.50
SparrowsPoint,Md. B2 .. 3.50
Steubenville,O. W10 .... 3.50
Warren,O. R2 ..... 3.50
Weirton,W.Va. W6 .... 3.50
Youngstown C3, R2, Y1. 3.50

PLATES (Universal Mill)
Fontana,Calif. K1 ..... 4.40

PLATES, Carbon A.R.
Fontana,Calif. K1 .... 5.25

BARS, Hot-Rolled Carbon
AlabamaCity,Ala. R2 .. 3.45
Aliquippa,Pa. J5 ..... 3.45
Alton,Ill.(1) L1 ..... 3.45
Atlanta,Ga. A11 ..... 3.60
Bessemer,Ala. T2 ..... 3.45
Buffalo R2 ..... 3.45
Canton,O. R2 ..... 3.45
Clairton,Pa. C3 ..... 3.45
Cleveland R2 ..... 3.45
Ecorse,Mich. G5 ..... 3.65
Emeryville,Calif. J7 .... 4.20
Fairfield,Ala. T2 ..... 3.45
Fontana,Calif. K1 ..... 4.10
Gary,Ind. C3 ..... 3.45
Houston,Tex. S5 ..... 3.85
Ind.Harbor,Ind. I-2, Y1. 3.45
Johnstown,Pa. B2 ..... 3.45
KansasCity,Mo. S5 .... 4.05
Lackawanna,N.Y. B2 .. 3.45
LosAngeles B3 ..... 4.15
Milton,Pa. B6 ..... 3.45
Minnequa,Colo. C10 .... 3.85
Niles,Calif. P1 ..... 4.17
N.Tonawanda,N.Y. B11. 3.45
Pittsburg,Calif. C11 ... 4.15
Pittsburgh J5 ..... 3.45
Portland,Oreg. O4 ..... 4.20
Seattle B3, N14 ..... 4.20
So.Chicago C3, R2, W14. 3.45
So.Duquesne,Pa. C3 .... 3.45
S.SanFran.,Cal. B3 .... 4.20
Struthers,O. Y1 ..... 3.45
Torrance,Calif. C11 .... 4.15
Weirton,W.Va. W6 .... 3.45
Youngstown C3, R2 .... 3.45

BAR SIZE ANGLES; S. SHAPES
Aliquippa,Pa. J5 ..... 3.45
Atlanta A11 ..... 3.60
Johnstown,Pa. B2 ..... 3.45
Lackawanna,N.Y. B2 .. 3.45
Niles,Calif. P1 ..... 4.17
Pittsburgh(23) J5 ..... 3.45
Portland,Oreg. O4 ..... 4.20
SanFrancisco S7 ..... 4.00
Weirton,W.Va. W6 .... 3.45

BAR SIZE ANGLES; H.R.CARBON
Bethlehem,Pa. B2 ..... 3.65

BARS, Hot-Rolled Alloy
Bethlehem,Pa. B2 ..... 3.95
Buffalo R2 ..... 3.95
Canton,O. R2, T7 ..... 3.95
Clairton,Pa. C3 ..... 3.95
Ecorse,Mich. G5 ..... 4.25
Fontana,Calif. K1 ..... 4.95
Gary,Ind. C3 ..... 3.95
Houston,Tex. S5 ..... 4.35
Ind.Harbor,Ind. I-2, Y1. 3.95
Johnstown,Pa. B2 ..... 3.95
KansasCity,Mo. S5 .... 4.55
Lackawanna,N.Y. B2 .. 3.95
LosAngeles B3 ..... 5.00
Massillon,O. R2 ..... 3.95
Midland,Pa. C18 ..... 3.95
So.Chicago C3, R2, W14. 3.95
So.Duquesne,Pa. C3 .... 3.95
Struthers,O. Y1 ..... 3.95
Warren,O. C17 ..... 3.95
Youngstown C3 ..... 3.95

BAR SHAPES, Hot-Rolled Alloy
Clairton,Pa. C3 ..... 4.20
Fontana,Calif. K1 ..... 4.95
Gary,Ind. C3 ..... 4.20
Youngstown C3 ..... 4.20

BARS & SMALL SHAPES, H.R., High-Strength Low-Alloy
Aliquippa,Pa. J5 ..... 5.20
Atlanta A11 ..... 5.35
Bessemer,Ala. T2 ..... 5.20
Bethlehem,Pa. B2 ..... 5.20
Clairton,Pa. C3 ..... 5.20
Cleveland R2 ..... 5.20
Ecorse,Mich. G5 ..... 5.40
Fairfield,Ala. T2 ..... 5.20
Fontana,Calif. K1 ..... 6.25
Gary,Ind. C3 ..... 5.20
Ind.Harbor,Ind. I-2, Y1. 5.20
Johnstown,Pa. B2 ..... 5.20
Lackawanna,N.Y. B2 .. 5.20
LosAngeles B3 ..... 5.90
Pittsburgh J5 ..... 5.20
So.Duquesne,Pa. C3 .... 5.20
So.SanFrancisco B3 .... 5.95
Struthers,O. Y1 ..... 5.20
Youngstown C3 ..... 5.20

BARS, Cold-Finished Carbon
Aliquippa,Pa. K5 ..... 4.15
Ambridge,Pa. W18 ..... 4.15
BeaverFalls,Pa. M12,R2. 4.15
Buffalo B5 ..... 4.15
Camden,N.J. P13 ..... 4.60
Carnegie,Pa. C12 ..... 4.15
Chicago W18 ..... 4.15
Cleveland A7, C20 .... 4.15
Detroit P17 ..... 4.30
Donora,Pa. A7 ..... 4.15
Ecorse,Mich. G5 ..... 4.35
Elyria,O. W8 ..... 4.15
FranklinPark,Ill. N5 ... 4.15
Gary,Ind. R2 ..... 4.15
Hammond,Ind. L2, M13. 4.15
Hartford,Conn. R2 ..... 4.55
Harvey,Ill. B5 ..... 4.15
LosAngeles R2 ..... 5.55
Mansfield,Mass. B5 .... 4.55
Massillon,O. R2, R8 ... 4.15
Midland,Pa. C18 ..... 4.15
Monaca,Pa. S17 ..... 4.15
Newark,N.J. W18 ..... 4.55
Plymouth,Mich. P5 .... 4.40
Pittsburgh J5 ..... 4.10
Putnam,Conn. W18 .... 4.55
Readville,Mass. C14 .... 4.55
St.Louis,Mo. M5 ..... 4.55
So.Chicago,Ill. W14 .... 4.15
SpringCity,Pa.(5) K3 .. 4.55
Struthers,O. Y1 ..... 4.15
Waukegan,Ill. A7 ..... 4.15
Youngstown F3, Y1 .... 4.15

BARS, Cold-Finished Alloy
Aliquippa,Pa. K5 ..... 4.90
Ambridge,Pa. W18 .... 4.90
BeaverFalls,Pa. M12 ... 4.90
Bethlehem,Pa. B2 ..... 4.90
Buffalo B5 ..... 4.90
Canton,O. R2, T7 ..... 4.90
Carnegie,Pa. C12 ..... 4.90
Chicago W18 ..... 4.90
Cleveland A7, C20 ..... 4.90
Detroit P17 ..... 5.05
Donora,Pa. A7 ..... 4.90
Elyria,O. W8 ..... 4.90
Gary,Ind. R2 ..... 4.90
Hammond,Ind. L2, M13. 4.90
Hartford,Conn. R2 ..... 5.20
Harvey,Ill. B5 ..... 4.90
Lackawanna,N.Y. B2 .. 4.90
Mansfield,Mass. B5 .... 5.20
Massillon,O. R2, R8 ... 4.90
Midland,Pa. C18 ..... 4.90
Monaca,Pa. S17 ..... 4.90
Newark,N.J. W18 ..... 5.20
Plymouth,Mich. P5 ..... 5.10
So.Chicago,Ill. R2, W14. 4.90
Struthers,O. Y1 ..... 4.90
Warren,O. C17 ..... 4.90
Waukegan,Ill. A7 ..... 4.90
Worcester,Mass. A7 .... 5.20
Youngstown F3, Y1 .... 4.90

RAIL STEEL BARS
ChicagoHts. (3) C2, I-2. 3.30
ChicagoHts. (4) C2, I-2. 3.45
Franklin,Pa.(3, 4) F5 .. 3.45
FortWorth,Tex.(26) T4.. 4.15
Huntngtn,W.Va.(3) W7.. 3.45
Marion,O. (3) P11 ..... 3.45
Moline,Ill.(3) R2 ..... 3.40
SouthAvis,Pa.(2) J8 ... 3.30
Williamsport(2,3) S19 .. 3.45

BARS, Wrought Iron
Economy,Pa.(S.R.) B14. 8.60
Economy,Pa.(D.R.)B14 11.00
Economy(Staybolt)B14 11.30
Dover,N.J.(Staybolt)U1 15.00
Dover(Eng.Bolt) U1 .. 13.50
Dover(Wrgt.Iron) U1.. 12.25
McK.Rks.(S.R.) L5 .... 8.60
McK.Rks.(D.R.) L5 ... 11.25
McK.Rks.(Staybolt) L5. 12.75

BARS, Reinforcing (Fabricators)
AlabamaCity,Ala. R2 .. 3.45
Alton,Ill.(6) L1 ..... 3.45
Atlanta A11 ..... 3.60
Buffalo R2 ..... 3.45
Cleveland R2 ..... 3.45
Emeryville,Calif. J7 .... 4.20
Fairfield,Ala. T2 ..... 3.45
Fontana,Calif. K1 ..... 4.10
Gary,Ind. C3 ..... 3.45
Houston,Tex. S5 ..... 3.85
Ind.Harbor,Ind. I-2, Y1. 3.45
Johnstown,Pa. B2 ..... 3.45
KansasCity,Mo. S5 .... 4.05
Lackawanna,N.Y. B2 .. 3.45
LosAngeles B3 ..... 4.15
Milton,Pa. B6 ..... 3.45
Minnequa,Colo. C10 .... 4.25
Niles,Calif. P1 ..... 4.17
Pittsburgh,Calif. C11 ... 4.15
Pittsburgh J5 ..... 3.45
Portland,Oreg. O4 ..... 4.20
SandSprings,Okla. S5 .. 4.35
Seattle,Wash. B3, N14.. 4.20
SouthAvis,Pa. J8 ..... 3.45
So.Chicago,Ill. R2 ..... 3.45
So.Duquesne,Pa. C3 .... 3.45
So.SanFrancisco B3 .... 4.20
SparrowsPoint,Md. B2.. 3.45
Struthers,O. Y1 ..... 3.45
Torrance,Calif. C11 .... 4.15
Youngstown C3, R2 .... 3.45

BARS, Reinforcing (Fabricated; to Consumers)
Huntington,W.Va. W7 .. 4.50
Johnstown, ¼-1" B2 ... 4.35
LosAngeles B3 ..... 5.00
Marion,O. P11 ..... 4.40
Seattle B3, N14 ..... 5.10
SouthAvis,Pa. J8 ..... 4.35
So.SanFrancisco B3 .... 5.00
SparrowsPt., ¼-1" B2 .. 4.35
Williamsport,Pa. S19 .. 4.35

SHEET, Hot-Rolled Steel (18 gage and heavier)
AlabamaCity,Ala. R2 .. 3.35
Ashland,Ky.(8) A10 ... 3.35
Butler,Pa. A10 ..... 3.35
Cleveland J5, R2 ..... 3.35
Conshohocken,Pa. A3 .. 3.45
Detroit M1 ..... 4.15
Ecorse,Mich.(8) G5 .... 3.55
Fairfield,Ala. T2 ..... 3.35
Fontana,Calif. K1 ..... 4.25
Gary,Ind. C3 ..... 3.35
Ind.Harbor,Ind. I-2, Y1. 3.35
Irvin,Pa. C3 ..... 3.35
Lackawanna,N.Y. B2 .. 3.35
Munhall,Pa. C3 ..... 3.35
Pittsburg,Calif. C11 ... 4.05
Pittsburgh J5 ..... 3.35
Sharon,Pa. S3 ..... 3.50
So.Chicago,Ill. W14 .... 3.35
SparrowsPoint,Md. B2 .. 3.35
Steubenville,O. W10 .... 3.35
Torrance,Calif. C11 .... 4.05
Warren,O. R2 ..... 3.35
Weirton,W.Va. W6 .... 3.35
Youngstown C3, Y1 .... 3.35

SHEETS, Hot-Rolled Carbon Steel (19 gage and lighter)
AlabamaCity,Ala. R2 .. 4.50
Dover,O. R1 ..... 4.65
Ind.Harbor,Ind. I-2 .... 4.40
Mansfield,O. E6 ..... 4.15
Niles,O. N12 ..... 4.10
Torrance,Calif. C11 .... 5.15

SHEETS, H-R (14 ga., heavier) High-Strength Low-Alloy
Cleveland J5, R2 ..... 5.05
Conshohocken,Pa. A3 .. 5.05
Ecorse,Mich. G5 ..... 5.25
Fairfield,Ala. T2 ..... 5.05
Fontana,Calif. K1 ..... 6.74
Gary,Ind. C3 ..... 5.05
Ind.Harbor,Ind. I-2, Y1. 5.05
Irvin,Pa. C3 ..... 5.05
Lackawanna(35) B2 ... 5.05
Pittsburgh J5 ..... 5.05
Sharon,Pa. S3 ..... 5.05
So.Chicago,Ill. C3 .... 5.05
SparrowsPoint(36) B2 .. 5.05
Warren,O. R2 ..... 5.05
Weirton,W.Va. W6 .... 5.05
Youngstown, C3, Y1 .... 5.05

SHEETS, Cold-Rolled High-Strength Low-Alloy
Cleveland J5, R2 ..... 6.20
Ecorse,Mich. G5 ..... 6.40
Fontana,Calif. K1 ..... 7.05
Gary,Ind. C3 ..... 6.20
Ind.Harbor,Ind. I-2, Y1. 6.20
Irvin,Pa. C3 ..... 6.20
Lackawanna(37) B2 ... 6.20
Pittsburgh J5 ..... 6.20
SparrowsPoint(38) B2.. 6.20
Warren,O. R2 ..... 6.20
Weirton,W.Va. W6 .... 6.20
Youngstown Y1 ..... 6.20

SHEETS, Cold-Rolled Steel (Commercial Quality)

Butler,Pa. A10	4.10
Cleveland J5, R2	4.10
Ecorse,Mich. G5	4.30
Fairfield,Ala. T2	4.10
Follansbee,W.Va. F4	5.10
Fontana,Calif. K1	5.00
Gary,Ind. C3	4.10
GraniteCity,Ill. G4	4.30
Ind.Harbor,Ind. I-2, Y1	4.10
Irvin,Pa. C3	4.10
Lackawanna,N.Y. B2	4.10
Middletown,O. A10	4.10
Pittsburg,Calif. C11	5.05
Pittsburgh J5	4.10
SparrowsPoint,Md. B2	4.10
Steubenville,O. W10	4.10
Warren,O. R2	4.10
Weirton,W.Va. W6	4.10
Youngstown Y1	4.10

SHEETS, Galv'd No. 10 Steel

AlabamaCity,Ala. R2	4.40
Ashland,Ky.(8) A10	4.40
Canton,O. R2	4.40
Delphos,O. N16	5.15
Dover,O. R1	4.75
Fairfield,Ala. T2	4.40
Gary,Ind. C3	4.40
GraniteCity,Ill. G4	4.60
Ind.Harbor,Ind. I-2	4.40
Irvin,Pa. C3	4.40
Kokomo,Ind. C16	4.50
MartinsFerry,O. W10	4.40
Niles,O. N12	4.65
Pittsburg,Calif. C11	5.15
SparrowsPoint,Md. B2	4.40
Steubenville,O. W10	4.40
Torrance,Calif. C11	5.15
Weirton,W.Va. W6	4.40

SHEETS, Galvanized No. 10, High-Strength Low Alloy

Irvin,Pa. C3	6.75
SparrowsPoint(39) B2	6.75

SHEETS, Galvannealed Steel

Canton,O. R2	4.95
Irvin,Pa. C3	4.95
Kokomo,Ind. C16	5.05
Niles,O. N12	5.20

SHEETS, ZINCGRIP Steel No. 10

Butler,Pa. A10	4.65
Middletown,O. A10	4.65

SHEETS, Electro Galvanized

Cleveland R2 (28)	5.25
Niles,O. R2 (28)	5.25
Weirton,W.Va. W6	5.10

SHEETS, Zinc Alloy

Ind.Harbor,Ind. I-2	5.05

SHEETS, Long Terne, Steel (Commercial Quality)

BeechBottom,W.Va. W10	4.80
Gary,Ind. C3	4.80
Mansfield,O. E6	4.80
Middletown,O. A10	4.80
Niles,O. N12	4.80
Weirton,W.Va. W6	4.80

SHEETS, Long Terne, Ingot Iron

Middletown,O. A10	5.20

ROOFING SHORT TERNES (Package; 8 lb coated)

Gary,Ind. C3	$17.50
Yorkville,O. W10	17.50

MANUFACTURING TERNES (Special Coated)

Fairneld,Ala. T2	$6.45
Gary,Ind. C3	6.35
Irvin,Pa. C3	6.35
SparrowsPoint,Md. B2	6.45
Yorkville,O. W10	6.35

SHEETS, Lt. Coated Ternes, 6 lb

Yorkville,O. W10	$7.05

SHEETS, Mfg. Ternes, 8 lb

Gary,Ind. C3	$8.10
Warren,O. R2	8.10
Yorkville,O. W10	8.10

BLUED STOCK, 29 Ga.

Yorkville,O. W10	6.00

SHEETS, Culvert No. 16 Corrugated Ingot Iron

	Cu	Cu
	No. 16	Alloy	Fe
Ashland,Ky. A10	5.20		
Canton,O. R2	5.25	5.70	
Fairfield,Ala. T2	5.20	5.45	
Gary C3	5.20	5.45	
IndianaHarbor I-2	5.20	5.45	
Irvin,Pa. C3	5.20	5.45	
Kokomo C16	5.40		
MartinsFy,O. W10	5.20	5.45	
Pittsburg,Cal. C11	5.95		
SparrowsPt. B2	5.20		
Torrance,Cal. C11	5.95		

SHEETS, Culvert, No. 16 Corrugated Ingot Iron

Ashland,Ky. A10	5.45
Fairfield,Ala. T2	5.45

SHEETS, Hot-Rolled Ingot Iron 18 Gage and Heavier

Ashland(8) A10	3.60
Cleveland R2	3.95
Ind.Harbor,Ind. I-2	3.60
Warren,O. R2	3.95

SHEETS, Cold-Rolled Ingot Iron

Cleveland R2	4.70
Middletown,O. A10	4.60
Warren,O. R2	4.70

SHEETS, Galvanized Ingot Iron No. 10 Flat

Ashland,Ky.(8) A10	4.65
Canton,O. R2	5.15
Ind.Harbor,Ind. I-2	4.80

SHEETS, ZINCGRIP Ingot Iron

Butler,Pa. A10	4.90
Middletown,O. A10	4.90

SHEETS, Wrought Iron

	An'ld	Galv.
Apollo,Pa. B14	12.00	15.50

SHEETS, Drum Body

Pittsburg,Calif. C11	4.05
Torrance,Calif. C11	4.05

SHEETS, ALUMINIZED

Butler,Pa. A10	7.75

TIN PLATE, Electrolytic (Base Box)

	0.25 lb	0.50 lb	0.75 lb
Aliquippa,Pa. J5	$6.35	$6.60	$6.85
Fairfield,Ala. T2	6.45	6.70	6.95
Gary,Ind. C3	6.35	6.60	6.85
GraniteCity,Ill. G4	6.55	6.80	7.05
Ind.Harbor,Ind. I-2, Y1	6.35	6.60	6.85
Irvin,Pa. C3	6.35	6.60	6.85
Niles,O. R2	6.35	6.60	6.85
Pittsburg,Calif. C11	7.10	7.35	7.60
SparrowsPoint,Md. B2	6.45	6.70	6.95
Weirton,W.Va. W6	6.35	6.60	6.85
Yorkville,O. W10	6.35	6.60	6.85

SHEETS, SILICON, H.R. or C.R.(22 Ga.) COILS (Cut Lengths ½c lower)

	Field	Armature	Electric	Motor	Dynamo
BeechBottom W10 (cut lengths)	...	...	6.70	7.95	8.75
Brackenridge,Pa. A4	...	...	7.20	8.45	9.25
GraniteCity,Ill. G4(cut lengths)	...	...	6.90	8.15	...
Ind.Harbor,Ind. I-2	6.40	6.70	(34)	...	...
Mansfield,O. E6 (cut lengths)	5.90	6.20	6.70	7.95	8.75
Niles,O. N12 (cut lengths)	...	6.20	6.70	...	...
Parkersburg F4 (cut lengths)	...	...	...	...	8.75
Vandergrift,Pa. C3	...	6.70	7.20	8.45	9.25
Warren,O. R2	6.40	6.70	7.20	8.45	9.25
Zanesville,O. A10	...	6.70	7.20	8.45	9.25

SHEETS, SILICON (22 Gage Base) Coils (Cut Lengths ½c lower) Transformer Grade

	72	65	58	52
BeechBottom W10 (cut lengths)	9.30	9.85	10.55	11.35
Brackenridge,Pa. A4	9.80	10.35	11.05	....
Parkersburg F4 (cut lengths)	9.30	....	....	....
Vandergrift,Pa. C3	9.80	10.35	11.05	11.85
Warren,O. R2	9.80	....	....	....
Zanesville,O. A10	9.80	10.35	11.05	11.85

H.R. or C.R. COILS AND CUT LENGTHS, SILICON (22 Ga.)

	T-100	T-90	T-80	T-73
Butler,Pa. A10 (C.R.)	....	....	14.20	14.70
Vandergrift,Pa. C3	12.35	13.20	14.20	14.70

TIN PLATE, American 1.25 1.50 COKE (Base Box)

	lb	lb
Aliquippa J5	$7.30	$7.50
Fairfield,Ala. T2	7.40	7.60
Gary, C3	7.30	7.50
Ind.Harbor I-2, Y1	7.30	7.50
Irvin,Pa. C3	7.30	7.50
Pitts.Cal. C11	8.05	8.25
Sp.Pt.,Md. B2	7.40	7.60
Warren R2	7.30	7.50
Weirton W6	7.30	7.50
Yorkville,O. W10	7.30	7.50

CANMAKING BLACK PLATE (Base Box)

Aliquippa,Pa. J5	$5.60
Fairfield,Ala. T2	5.70
Gary,Ind. C3	5.60
GraniteCity,Ill. G4	5.80
Ind.Harbor,Ind. I-2, Y1	5.60
Irvin,Pa. C3	5.60
Niles,O. R2	5.60
Pittsburg,Calif. C11	6.35
SparrowsPoint,Md. B2	5.70
Warren,O. R2	5.60
Weirton,W.Va. W6	5.60
Yorkville,O. W10	5.60

HOLLOWARE ENAMELING Black Plate (29 gage)

Aliquippa,Pa. J5	5.30
Follansbee,W.Va. F4	5.30
Gary,Ind. C3	5.30
GraniteCity,Ill. G4	5.50
Ind.Harbor,Ind. Y1	5.30
Irvin,Pa. C3	5.30
Niles,O. R2	5.30
SparrowsPoint,Md. B2	5.40
Warren,O. R2	5.30
Yorkville,O. W10	5.30

SHEETS, Enameling Iron

Ashland,Ky.(8) A10	4.40
Cleveland R2	4.40
Ecorse,Mich. G5	4.70
Gary,Ind. C3	4.40
GraniteCity,Ill. G4	4.60
Ind.Harbor,Ind. I-2	4.40
Irvin,Pa. C3	4.40
Middletown,O. A10	4.40
Youngstown Y1	4.40

STRIP, Hot-Rolled, High-Strength Low-Alloy

Atlanta(9) A11	5.10
Bessemer,Ala. T2	4.95
Conshohocken,Pa. A3	4.95
Ecorse,Mich. G5	5.15
Fairfield,Ala. T2	4.95
Fontana,Cal. K1	6.64
Gary,Ind. C3	4.95
Ind.Harb.,Ind. I-2, Y1	4.95
Lackawanna,N.Y. B2	4.95
LosAngeles(25) B3	5.70
Sharon,Pa. S3	4.95
So.SanFrancisco(25) B3	5.70
SparrowsPoint,Md. B2	4.95
Warren,O. R2	4.95
Weirton,W.Va. W6	4.95
Youngstown C3, Y1	4.95

STRIP, Hot-Rolled Alloy

Bridgeprt,Conn.(10) S15	5.10
Carnegie,Pa. S18	5.10
Fontana,Calif. K1	6.30
Gary,Ind. C3	5.10
Houston,Tex. S5	5.50
KansasCity,Mo. S5	5.70
NewBritn,Conn.(10) S15	5.10
Sharon,Pa. S3	5.10
Youngstown C3	5.10

STRIP, Hot-Rolled Ingot Iron

Ashland,Ky.(8) A10	3.50
Warren,O. R2	3.85

STRIP, Hot-Rolled Carbon

Ala.City,Ala.(27) R2	3.25
Alton,Ill.(1) L1	3.25
Ashland,Ky.(8) A10	3.25
Atlanta A11	3.40
Bessemer,Ala. T2	3.25
Bridgeprt,Conn.(10) S15	3.50
Buffalo(27) R2	3.25
Butler,Pa. A10	3.25
Carnegie,Pa. S18	3.50
Conshohocken,Pa. A3	3.35
Detroit M1	4.05
Ecorse,Mich. G5	3.45
Fairfield,Ala. T2	3.25
Fontana,Calif. K1	4.40
Gary,Ind. C3	3.25
Houston,Tex. S5	3.65
Ind.Harbor,Ind. I-2, Y1	3.25
KansasCity,Mo.(9) S5	3.85
Lackawanna,N.Y. B2	3.25
LosAngeles B3	4.00
Milton,Pa. B6	3.25
Minnequa,Colo. C10	4.30
NewBritain(10) S15	3.50
N.Tonawanda,N.Y. B11	3.25
Pittsburg,Calif. C11	4.00
Riverdale,Ill. A1	3.25
SanFrancisco S7	4.00
Seattle B3, N14	4.25
Sharon,Pa. S3	3.50
So.Chicago,Ill. W14	3.25
So.SanFrancisco B3	4.00
SparrowsPoint,Md. B2	3.25
Torrance,Calif. C11	4.00
Warren,O. R2	3.25
Weirton,W.Va. W6	3.25
WestLeechburg,Pa. A4	3.25
Youngstown C3, Y1	3.25

STRIP, Cold-Rolled Alloy Steel

Bridgeprt,Conn.(10) S15	9.50
Carnegie,Pa. S18	9.50
Cleveland A7	9.50
Dover,O. G6	9.50
Harrison,N.J. C18	9.50
NewBritn,Conn.(10) S15	9.50
Pawtucket,R.I.(11) N8	9.50
Pawtucket,R.I.(12) N8	9.80
Sharon,Pa. S3	9.50
Worcester,Mass. A7	9.80
Youngstown C8	9.50

STRIP, Cold-Rolled Ingot Iron

Warren,O. R2	4.75

STRIP, Cold-Finished, Spring Steel (Annealed)

	0.26-0.40C	0.41-0.60C	0.61-0.80C	0.81-1.05C	1.06-1.35C
Bridgeport,Conn.(10) S15	4.15	5.95	6.55	8.50	10.80
Bristol,Conn. W1	...	...	6.85	8.80	....
Carnegie,Pa. S18	...	5.95	6.55	8.50	10.80
Cleveland A7	4.15	5.95	6.55	8.50	10.80
Dover,O. G6	4.15	5.95	6.55	8.50	10.80
FranklinPark,Ill. T6	4.40	6.10	6.70	8.65	....
Harrison,N.J. C18	...	...	6.85	8.80	11.10
Mattapan,Mass. T6	4.65	6.25	6.85	8.80	11.10
NewBritn.,Conn.(10) S15	4.15	5.95	6.55	8.50	10.80
NewCastle,Pa. B4	4.15	5.95	6.55	8.50	....
NewCastle,Pa. E5	4.50	5.95	6.55	8.50	10.80
NewYork W3	...	6.30	6.90	8.85	11.15
Pawtucket,R.I. N8:					
Cleve.orPitts.Base	4.70	5.95	6.55	8.50	10.80
Worcester,Base	4.65	6.25	6.85	8.80	11.10
Sharon,Pa. S3	4.50	5.95	6.55	8.50	10.80
Trenton,N.J. R5	...	6.25	6.85	8.80	11.10
Wallingford,Conn. W2	4.65	6.25	6.85	8.80	11.10
Weirton,W.Va. W6	4.15	5.95	6.55	8.50	10.80
Worcester,Mass. A7	4.45	6.25	6.85	8.80	11.10
Worcester,Mass. T6	4.65	6.25	6.85	8.80	11.10
Youngstown C8	4.15	5.95	6.55	8.50	10.80
Spring Steel (Tempered)					
Trenton,N.J. R5	...	...	9.30	11.25	13.85
Harrison,N.J. C18	...	...	9.30	11.25	13.85

STRIP, Cold-Rolled Carbon

Anderson,Ind.(40) G6	4.50
Berea,O. C7	6.60
Bridgeprt,Conn.(10) S15	4.50
Butler,Pa. A10	4.15
Cleveland A7, J5	4.15
Dearborn,Mich. D3	4.75
Detroit D2	4.75
Detroit M1	4.95
Dover,O.(40) G6	4.50
Ecorse,Mich. G5	4.35
Follansbee,W.Va. F4	4.50
Fontana,Calif. K1	5.40
FranklinPark,Ill. T6	4.30
Ind.Harbor,Ind. I-2	4.30
Lackawanna,N.Y. B2	4.15
LosAngeles C1	5.50
Mattapan,Mass. T6	5.00
Middletown,O. A10	4.15
NewBritain(10) S15	4.50
NewCastle,Pa. B4	4.50
NewCastle,Pa.(40) E5	4.50
NewHaven,Conn. D2	5.00
NewHaven,Conn. A7	4.65
NewYork W3	5.00
Pawtucket,R.I. R3	5.15
Pawtucket,R.I.(21) N8	5.00
Riverdale,Ill. A1	4.30
Rome,N.Y. R6	4.15
Sharon,Pa. S3	4.50
SparrowsPoint,Md. B2	4.15
Trenton,N.J.(13) R5	5.00
Wallingford,Conn. W2	5.00
Warren,O.(40) T5	4.50
Warren,O. R2	4.50
Weirton,W.Va. W6	4.15
Youngstown C8, (40)	4.50
Youngstown Y1	4.15

STRIP, Cold-Rolled, High-Strength Low-Alloy

Cleveland A7, J5	6.20
Dover,O. G6	6.20
Ecorse,Mich. G5	6.40
Fontana,Calif. K1	6.95
Lackawanna,N.Y. B2	6.40
Sharon,Pa. S3	6.20
SparrowsPoint,Md. B2	6.40
Warren,O. R2	6.20
Weirton,W.Va. W6	6.20
Youngstown Y1	6.20

STRIP, Electro Galvanized

Weirton,W.Va. W6	4.15
Youngstown C8	4.15

Key to Producing Companies

A1	Acme Steel Co.
A3	Alan Wood Steel Co.
A4	Allegheny Ludlum Steel
A7	American Steel & Wire
A8	Anchor Drawn Steel Co.
A9	Angell Nail & Chaplet
A10	Armco Steel Corp.
A11	Atlantic Steel Co.
A13	American Cladmetals Co.
B1	Babcock & Wilcox Tube
B2	Bethlehem Steel Co.
B3	Beth. Pac. Coast Steel
B4	Blair Strip Steel Co.
B5	Bliss & Laughlin Inc.
B6	Boiardi Steel Corp.
B8	Braeburn Alloy Steel
B11	Buffffalo Bolt Co.
B14	A. M. Byers Co.
C1	Calif. Cold Rolled Steel
C2	Calumet Steel Div., Borg-Warner Corp.
C3	Carnegie-Illinois Steel
C4	Carpenter Steel Co.
C5	Central Iron & Steel Div. Barium Steel Corp.
C7	Cleve.Cold.Roll.MillsCo.
C8	Cold Metal Products Co.
C9	Colonial Steel Co.
C10	Colorado Fuel & Iron
C11	Columbia Steel Co.
C12	Columbia Steel & Shaft.
C13	Columbia Tool Steel Co.
C14	Compressed Steel Shaft
C16	Continental Steel Corp.
C17	Copperweld Steel Co.
C18	Crucible Steel Co.
C19	Cumberland Steel Co.
C20	Cuyahoga Steel & Wire
D2	Detroit Steel Corp.
D3	Detroit Tube & Steel
D4	Disston & Son, Henry
D6	Driver Harris Co.
D7	Dickson Weatherproof Nail Co.
E1	Eastern Gas&Fuel Assoc.
E2	Eastern Stainless Steel
E4	Electro Metallurgical Co.
E5	Elliott Bros. Steel Co.
E6	Empire Steel Corp.
F2	Firth Sterling Steel
F3	Fitzsimons Steel Co.
F4	Follansbee Steel Corp.
F5	Franklin Steel Div., Borg-Warner Corp.
F6	Fretz-Moon Tube Co.
B1	Geneva Steel Co.
G2	Globe Iron Co.
G3	Globe Steel Tubes Co.
G4	Granite City Steel Co.
G5	Great Lakes Steel Corp.
G6	Greer Steel Co.
H1	Hanna Furnace Corp.
H4	Heppenstall Co.
I-1	Igoe Bros. Inc.
I-2	Inland Steel Co.
I-3	Interlake Iron Corp.
I-4	Ingersoll Steel Div., Borg-Warner Corp.
J1	Jackson Iron & Steel Co.
J3	Jessop Steel Co.
J4	Johnson Steel & Wire Co.
J5	Jones & Laughlin Steel
J6	Joslyn Mfg. & Supply
J7	Judson Steel Corp.
J8	Jersey Shore Steel Co.
K1	Kaiser Steel Corp.
K2	Keokuk Electro-Metals
K3	Keystone Drawn Steel
K4	Keystone Steel & Wire
K5	Klad Drawn Steel Co.
L1	Laclede Steel Co.
L2	LaSalle Steel Co.
L3	Latrobe Electric Steel
L5	Lockhart Iron & Steel
L6	Lone Star Steel Co.
L7	Lukens Steel Co.

TIGHT COOPERAGE HOOP

Atlanta A11	3.40
Riverdale,Ill. A1	3.40
Sharon,Pa. S3	3.65
Youngstown C3	3.40

WIRE, MB Spring, High Carbon

Aliquippa,Pa. J5	5.90
Alton,Ill.(1) L1	5.90
Bartonville,Ill.(1) K4	5.90
Buffalo W12	5.90
Cleveland A7	5.90
Donora,Pa. A7	5.90
Duluth A7	5.90
Fostoria,O. S1	5.90
Johnstown,Pa. B2	5.90
LosAngeles B3	6.85
Milbury,Mass(12) N6	6.20
Monessen,Pa. P7, P16	5.90
Palmer,Mass. W12	6.20
Pittsburg,Calif. C11	6.85
Portsmouth,O. P12	5.90
Roebling,N.J. R5	6.20
So.Chicago,Ill. R2	5.90
SparrowsPoint,Md. B2	6.00
Struthers,O. Y1	5.90
Trenton,N.J. A7	6.20
Waukegan,Ill. A7	5.90
Williamsport,Pa. B2	6.00
Worcester A7,J4,T6,W12	6.20
Worcester,Mass. N6	6.20

WIRE, Cold-Rolled Flat

Anderson,Ind. G6	5.35
Buffalo W12	5.35
Cleveland A7	5.35
Crawfordsville,Ind. MS	5.35
Dover,O. G6	5.35
Fostoria,O. S1	5.50
Kokomo,Ind. C16	5.35
FranklinPark,Ill. T6	5.70
Massillon,O. R8	5.35
Monessen,Pa. P7, P16	5.35
Pawtucket,R.I.(12) NS	6.00
Trenton,N.J. R5	5.65
Worcester A7, T6, W12	5.65

WIRE, Fine and Weaving (8-in. Coils)

Bartonville,Ill.(1) K4	8.45
Buffalo W12	8.45
Chicago W13	8.45
Cleveland A7	8.45
Crawfordsville,Ind. MS	8.45
Fostoria,O. S1	8.45
Johnstown,Pa. B2	8.45
Kokomo,Ind. C16	8.45
Monessen,Pa. P16	8.45
Palmer,Mass. W12	8.75
Portsmouth,O. P12	8.45
Roebling,N.J. R5	8.75
Waukegan,Ill. A7	8.45
Worcester,Mass. A7,T6	8.75

WIRE, Tire Bead

Bartonville,Ill.(1) K4	10.55
Monessen,Pa. P16	10.80
Roebling,N.J. R5	10.80

WIRE, Manufacturers Bright, Low-Carbon

AlabamaCity,Ala. R2	4.50
Aliquippa,Pa. J5	4.50
Atlanta A11	4.60
Alton,Ill.(1) L1	4.50
Bartonville,Ill.(1) K4	4.50
Buffalo W12	4.50
Chicago W13	4.50
Cleveland A7, C20, R2	4.50
Crawfordsville,Ind. MS	4.60
Donora,Pa. A7	4.50
Duluth A7	4.50
Fairfield,Ala. T2	4.50
Fostoria,O.(24) S1	4.85
Houston S5	4.90
Johnstown,Pa. B2	4.50
Joliet,Ill. A7	4.50
KansasCity,Mo. S5	5.10
Kokomo,Ind. C16	4.60
LosAngeles B3	5.45
Minnequa,Colo. C10	4.75
Monessen,Pa. P7	4.50
Newark, 6-Sga. I-1	5.15
No.Tonawanda B11	4.50
Palmer,Mass. W12	4.80
Pittsburg,Calif. C11	5.45
Portsmouth,O. P12	4.50
Rankin,Pa. A7	4.50
So.Chicago,Ill. R2	4.50
So.SanFrancisco C10	5.45
SparrowsPoint,Md. B2	4.60
Sterling,Ill.(1) N15	4.50
Struthers,O. Y1	4.50
Torrance,Calif. C11	5.45
Waukegan,Ill. A7	4.50
Worcester, Mass. A7	4.80
Worcester,Mass. T6	4.95

WIRE, Upholstery Spring

Aliquippa,Pa. J5	5.55
Alton,Ill.(1) L1	5.55
Buffalo W12	5.55
Cleveland A7	5.55
Donora,Pa. A7	5.55
Duluth A7	5.55
Johnstown,Pa. B2	5.55
LosAngeles B3	6.50
Monessen,Pa. P7, P16	5.55
NewHaven,Conn. A7	5.85
Palmer,Mass. W12	5.85
Pittsburg,Calif. C11	6.50
Portsmouth,O. P12	5.55
Roebling,N.J. R5	5.85
So.Chicago,Ill. R2	5.55
SparrowsPoint,Md. B2	5.65
Struthers,O. Y1	5.55
Torrance,Calif. C11	6.50
Trenton,N.J. A7	5.85
Waukegan,Ill. A7	5.55

WIRE, Galv'd ACSR for Cores

Bartonville,Ill. K4	8.15
Monessen,Pa. P16	8.15
Roebling,N.J. R5	8.45
SparrowsPoint,Md. B2	8.25

ROPE WIRE

	Mild Plow	Plow	Imp. Plow
Bartonville,Ill. K4	8.05	8.05	8.30
Buffalo W12	8.05	8.05	8.30
Cleveland A7	8.05	8.05	8.30
Donora,Pa. A7	8.05	8.05	8.30
Fostoria,O. S1	8.05	8.05	8.30
Johnstown,Pa. B2	8.05	8.05	8.30
Monessen,Pa. P7, P16	8.05	8.05	8.30
NewHaven,Conn. A7	8.35	8.35	8.60
Palmer,Mass. W12	8.35	8.35	8.60
Portsmouth,O. P12	8.05	8.05	8.30
Roebling,N.J. R5	8.35	8.35	8.60
SparrowsPoint,Md. B2	8.15	8.15	8.40
Struthers,O. Y1	8.05	8.05	8.30
Trenton,N.J. A7	8.35	8.35	8.60
Waukegan,Ill. A7	8.05	8.05	8.30
Williamsport,Pa. B2	8.15	8.15	8.40
Worcester,Mass. J4, T6	8.35	8.35	8.60

WIRE, Merchant Quality (6 to 8 gage)

	An'ld	Galv.
AlabamaCity R2	5.35	5.60
Aliquippa J5	5.35	5.60
Atlanta A11	5.45	5.70
Bartonville(19) K4	5.35	5.60
Buffalo(31) W12	4.50	...
Cleveland A7	5.35	5.60
Crawfordsvil, MS	5.45	5.70
Donora A7	5.35	5.60
Duluth A7	5.35	5.60
Fairfield T2	5.35	5.60
Houston,Tex. S5	5.75	6.00
Johnstown B2	5.35	5.60
Joliet,Ill. A7	5.35	5.60
KansasCy.Mo. S5	5.95	6.20
Kokomo C16	5.45	5.70
LosAngeles B3	6.30	...
Minnequa C10	5.60	5.85
Monessen P7	5.35	5.60
Palmer(31) W12	4.80	...
Pitts.,Cal. C11	6.30	6.55
Prtsmth.(18) P12	5.35	5.60
Rankin A7	5.35	5.60
So.Chicago R2	5.35	5.60
So.S.Fran. C10	6.30	6.55
SparrowsPt. B2	5.45	5.70
Sterling,Ill.(1)N15	5.35	5.60
Struthers,O. Y1	5.35	5.60
Torrance,Cal. C11	6.30	...
Worcester A7	5.65	5.90

WIRE (16 gage)

	An'ld Stone	Galv. Stone
Aliquippa J5	9.80	11.30
Bartonville(1) K4	9.80	11.30
Cleveland A7	9.80	11.30
Crawfrdvil, MS	9.80	11.30
Fostoria,O. S1	9.90	11.40
Johnstown B2	9.80	11.30
Kokomo C16	9.80	11.30
Minnequa C10	10.05	11.80
Palmer,Mass. W12	9.80	11.30
Pitts.,Cal. C11	10.15	11.65
Prtsmth.(18) P12	9.80	11.30
SparrowsPt. B2	9.90	11.40
Waukegan A7	9.80	11.30

WIRE, Barbed

	Col.
AlabamaCity,Ala. R2	126
Aliquippa,Pa. J5	126
Atlanta A11	128
Bartonville,Ill. K4	126
Crawfordsville MS	128
Donora,Pa. A7	126
Duluth,Minn. A7	126
Fairfield,Ala. T2	126
Houston,Tex. S5	134
Johnstown,Pa. B2	126
Joliet,Ill. A7	126
KansasCity,Mo. S5	138
Kokomo,Ind. C16	128
Minnequa,Colo. C10	131
Monessen,Pa. P7	126
Pittsburg,Calif. C11	146
Portsmouth,O.(18) P12	126
Rankin,Pa. A7	126
So.Chicago,Ill. R2	126
So.SanFran.,Calif. C10	146
SparrowsPoint, Md. B2	128
Sterling,Ill.(1) N15	126

FENCE POSTS

	Col.
ChicagoHts.,Ill. C2	116
Duluth A7	116
Franklin,Pa. F5	116
Huntington,W.Va. W7	116
Johnstown,Pa. B2	116
Joliet,Ill. A7	116
Marion,O. P11	116
Minnequa,Colo. C10	121
Moline,Ill. R2	112
So.Chicago R2	116
Williamsport,Pa. S19	120

WOVEN FENCE, 9-15½ Ga. Col.

AlabamaCity,Ala. R2	116
Ala.City,Ala.,17-18ga.R2	198
Aliquippa,Pa.9-14½ga.J5	116
Atlanta A11	118
Bartonville,Ill.(19) K4	116
Crawfordsville,Ind. MS	118
Donora,Pa. A7	116
Duluth A7	116
Houston,Tex. S5	124
Fairfield,Ala. T2	116
Johnstown,Pa. B2	116
Johnstn,17ga.6" B2	190
Johnstn.17ga.,4" B2	193
Joliet,Ill. A7	116
KansasCity, Mo. S5	128
Kokomo,Ind. C16	118
Minnequa,Colo. C10	121
Monessen,Pa. P7	116
Pittsburg,Calif. C11	139
Portsmouth,O.(18) P12	116
Rankin,Pa. A7	116
So.Chicago,Ill. R2	116
Sterling,Ill. N15	116

BALE TIES, Single Loop

	Col.
AlabamaCity,Ala. R2	113
Atlanta A11	114
Bartonville,Ill.(19) K4	113
Chicago W13	113
Crawfordsville MS	115
Donora,Pa. A7	113
Duluth A7	113
Fairfield,Ala. T2	113
Joliet,Ill. A7	113
KansasCity,Mo. S5	125
Kokomo,Ind. C16	115
Minnequa,Colo. C10	118
Pittsburg,Calif. C11	137
So.Chicago,Ill. R2	113
So.SanFran.,Calif. C10	137
SparrowsPoint,Md. B2	115
Sterling,Ill.(1) N15	113

AXLES

Fairfield,Ala. T2	5.25
Ind.Harbor,Ind. S13	5.25
Johnstown,Pa. B2	5.25

JOINT BARS

Bessemer,Pa. C3	4.40
Fairfield,Ala. T2	4.40
Ind.Harbor,Ind. I-2	4.40
Joliet,Ill. C3	4.40
Lackawanna,N.Y. B2	4.40
Minnequa,Colo. C10	4.40
Steelton,Pa. B2	4.40

STANDARD TRACK SPIKES

Ind.Harbor,Ind. I-2, Y1	5.60
KansasCity,Mo. S5	5.85
Lebanon,Pa. B2	5.60
Minnequa,Colo. C10	5.60
Pittsburgh J5	5.60
Seattle B3	6.10
So.Chicago,Ill. R2	5.60
Struthers,O. Y1	5.60
Youngstown R2	5.60

NAILS & STAPLES, Stock To Dealers & Mfrs. (7)

	Col.
AlabamaCity,Ala. R2	106
Aliquippa,Pa. J5	106
Atlanta A11	108
Bartonville,Ill.(19) K4	106
Chicago,Ill. W13	106
Cleveland A9	111
Crawfordsville,Ind. MS	108
Donora,Pa. A7	106
Duluth A7	106
Fairfield,Ala. T2	106
Galveston,Tex. D7	114
Houston,Tex. S5	114
Johnstown,Pa. B2	106
Joliet,Ill. A7	106
KansasCity,Mo. S5	118
Kokomo,Ind. C16	108
Minnequa,Colo. C10	111
Monessen,Pa. P7	106
Pittsburg,Calif. C11	125
Portsmouth,O. P12	106
Rankin,Pa. A7	106
So.Chicago,Ill. R2	106
SparrowsPoint,Md. B2	108
Sterling,Ill.(1) N15	106
Torrance, Calif. C11	126
Worcester, Mass. A7	112

NAILS & STAPLES, Non-Stock

AlabamaCity,Ala. R2	5.35
Bartonville,Ill.(19) K4	5.35
Crawfordsville,Ind. MS	5.45
Donora,Pa. A7	5.35
Duluth A7	5.35
Johnstown,Pa. B2	5.35
Joliet,Ill. A7	5.35
Kokomo,Ind. C16	5.45
Minnequa,Colo. C10	5.60
Pittsburg,Calif. C11	6.30
Portsmouth,O. P12	5.35
Rankin,Pa. A7	5.35
So.Chicago,Ill. R2	5.35
SparrowsPoint,Md. B2	5.45
Worcester,Mass. A7	5.65

NAILS, Cut (100 lb keg) To dealers (33)

Conshohocken,Pa. A3	$6.75
Wheeling,W.Va. W10	6.75

TIE PLATES

Fairfield,Ala. T2	4.20
Gary,Ind. C3	4.20
Ind.Harbor,Ind. I-2	4.20
Lackawanna,N.Y. B2	4.20
Minnequa,Colo. C10	4.20
Pittsburg,Calif. C11	4.35
Pittsburgh R2	4.20
Seattle B3	4.35
Steelton,Pa. B2	4.20
Torrance,Calif. C11	4.35
Weirton,W.Va. W6	4.20

TRACK BOLTS (20) Treated

KansasCity,Mo. S5	9.10
Lebanon,Pa.(32) B2	8.85
Minnequa,Colo. C10	8.85
Pittsburgh O3, P14	9.10
Seattle B3	9.35

RAILS

	Std. No. 1	Std. No. 2	Std. All No. 2	TeeRails 60 lb Under
Bessemer,Pa. C3	3.40	3.30	3.35	3.75
Ensley,Ala. T2	3.40	3.30	...	3.75
Fairfield,Ala. T2	...	...	...	3.75
Gary,Ind. C3	3.40	3.30	3.35	...
Huntington,W.Va. W7	...	...	...	3.75
Ind.Harbor,Ind. I-2	3.40	3.30	3.35	...
Johnstown,Pa. B2	...	...	...(16)	3.75
Lackawanna B2	3.40	3.30	...	3.75
Minnequa,Colo. C10	3.40	3.30	...	4.25
Steelton,Pa. B2	3.40	3.30	...	...
Williamsport,Pa. S19	...	...	...	3.75

TOOL STEEL

Grade	Cents per lb	Grade	Cents per lb
Reg. Carbon	21.00	18W,4Cr,3V	126.00
Extra Carbon	24.50	18W,4Cr,2V,9Co	185.50
Spec. Carbon	29.50-31.50	18W,4Cr,2V,6Co	169.50
Oil Hardening	32.00	18.25W,4.25Cr,1V,4.75Co	156.50
Cr Hot Wrk.	32.00	20.25W,4.25Cr,1.6V,12.25Co	293.50
Hi-Carbon-Cr	57.50	1.5W,4Cr,1V,8.5Mo	71.50
18W,4Cr,1V	100.00	6.4W,4.5Cr,1.9V,5Mo	76.50
18W,4Cr,2V	113.00	6W,4Cr,3V,6Mo	97.00

Tool steel producers include: A4, A8, B2, B8, C4, C9, C13, C18, D4, F2, H4, J3, L3, M14, S8, T7, U4, V2, V3

Key to Producing Companies

M1 McLouth Steel Corp.
M4 Mahoning Valley Steel
M5 Medart Co.
M6 Mercer Tube & Mfg. Co.
M8 Mid-States Steel & Wire
M9 Midvale Co.
M10 Missouri-Illinois Furnace
M12 Moltrup Steel Products
M13 Monarch Steel Co.
M14 McInnes Steel Co.
N2 National Supply Co.
N3 National Tube Co.
N5 Nelsen Steel & Wire Co.
N6 New Eng.HighCarb.Wire
N8 Newman-Crosby Steel
N12 Niles Rolling Mill Co.
N14 Nrthwst. Steel Roll.Mills
N15 Northwestern S.&W. Co.
N16 New Delphos Mfg. Co.
O3 Oliver Iron&Steel Corp.
O4 Oregon Steel Mills
P1 Pacific States Steel Corp.
P2 Pacific Tube Co.
P4 Phoenix Iron & Steel Co.
P5 Pilgrim Drawn Steel
P6 Pittsburgh Coke&Chem.
P7 Pittsburgh Steel Co.
P8 Pittsburgh Tube Co.
P11 Pollak Steel Co.
P12 Portsmouth Division, Detroit Steel Corp.
P13 Precision Drawn Steel
P14 Pitts. Screw & Bolt Co.
P15 Pittsburgh Metallurgical
P16 Page Steel & Wire Div., Amer. Chain & Cable
P 17 Plymouth Steel Co.
R1 Reeves Steel & Mfg. Co.
R2 Republic Steel Corp.
R3 Rhode Island Steel Corp.
R5 Roebling's Sons, John A.
R6 Rome Strip Steel Co.
R7 Rotary Electric Steel Co.
R8 Reliance Div.,EatonMfg.
S1 Seneca Wire & Mfg. Co.
S3 Sharon Steel Corp.
S5 Sheffield Steel Corp.
S6 Shenango Furnace Co.
S7 Simmons Co.
S8 Simonds Saw & Steel Co.
S9 Sloss-Sheffield S.&I. Co.
S13 Standard Forgings Corp.
S14 Standard Tube Co.
S15 Stanley Works
S16 Struthers Iron & Steel
S17 Superior Drawn Steel Co.
S18 Superior Steel Corp.
S19 Sweet's Steel Co.
T2 Tenn. Coal, Iron & R.R.
T3 Tenn. Prod. & Chem.
T4 Texas Steel Co.
T5 Thomas Steel Co.
T6 Thompson Wire Co.
T7 Timken Roller Bearing
T9 Tonawanda Iron Div. Am. Rad. & Stan. San.
U1 Ulster Iron Works
U4 Universal Cyclops Steel
V2 Vanadium Alloys Steel
V3 Vulcan Crucible Steel Co
W1 Wallace Barnes Co.
W2 Wallingford Steel Co.
W3 Washburn Wire Co.
W4 Washington Steel Corp.
W6 Weirton Steel Co.
W7 W. Va. Steel & Mfg. Co.
W8 West.Auto.Mach.Screw
W9 Wheatland Tube Co
W10 Wheeling Steel Co.
W12 Wickwire Spencer Steel Div., Colo. Fuel & Iron
W13 Wilson Steel & Wire Co.
W14 Wisconsin Steel Div., International Harvester
W15 Woodward Iron Co.
W16 Worth Steel Co.
W18 Wyckoff Steel Co.
Y1 Youngstown Sheet&Tube

(1) Chicago base.
(2) Angles, flats, bands.
(3) Merchant. (4) Reinforcing.
(5) Philadelphia del.
(6) Chicago or Birm. base.
(7) To jobbers, 3 cols. lower.
(8) 16 gage and heavier.
(9) 6 in. and narrower.
(10) Pittsburgh base.
(11) Cleveland & Pittsburgh base.
(12) Worcester, Mass. base.
(13) 3" & wider; over ½" to under 3" 5.50c.
(14) Also wide flange beams.
(15) ⅜" and thinner.
(16) 40 lb and under.
(17) Flats only.
(18) To dealers.
(19) Chicago & Pittsburgh base.
(20) Deduct 0.25c for untreated.
(21) New Haven, Conn. base
(22) Del. San Fran. Bay area.
(23) Angles 1"x1" to 1¾"x1¾" only.
(24) Deduct 0.35c for finer than 15 Ga.
(25) Bar mill bands.
(26) Reinforcing, mill shipments; to consumers, 4.95c.
(27) Bar mill sizes.
(28) Bonderized.
(31) Not annealed.
(32) Untreated.
(33) To jobbers, deduct 20 cents.
(34) 6.70c for cut lengths.
(35) 72" and narrower.
(36) 54" and narrower.
(37) 15 Ga. & lighter; 60" & narrower.
(38) 14 Ga. & lighter; 48" & narrower.
(39) 48" and narrower.
(40) Lighter than 0.035"; 4.75c. 0.035" and heavier.

STANDARD PIPE, T. & C.

BUTTWELD

Size Inches	List Per Ft	Pounds Per Ft	Carload Discounts from List, % Black A	Black B	Black C	Galvanized D	Galvanized E	Galvanized F
⅛	5.5c	0.24	36.5	34.5	33.5	5.5	3.5	5.5
¼	6.0	0.42	33.5	31.5	30.5	5.5	3.5	6.5
⅜	6.00	0.57	29.0	27.0	26.0	0.5	+1.5	2.5
½	8.5	0.85	40.5	38.5	39.5	21.0	19.0	20.0
¾	11.5	1.13	43.5	41.5	42.5	25.0	23.0	24.0
1	17.0	1.68	46.0	44.0	45.0	28.0	26.0	27.0
1¼	23.0	2.28	46.5	44.5	45.5	28.5	26.5	27.5
1½	27.5	2.73	47.0	45.0	46.0	29.0	27.0	28.0
2	37.0	3.68	47.5	45.5	46.5	29.5	27.5	28.5
2½	58.5	5.82	48.0	46.0	47.0	30.0	28.0	29.0
3	76.5	7.62	48.0	46.0	47.0	30.0	28.0	29.0

Column A: Etna, Pa. N2; Monaca, Pa. P9; Sharon, Pa. M6; Butler, Pa. ⅛-⅜", F6; Benwood, W. Va., 1½ percentage points lower on ⅛", 2 points lower on ¼", 3 points lower on ⅜", W10. Wheatland, Pa., 2 points lower on ⅛" through ⅜", W9. Following make ½" and larger: Lorain, O. N3; Youngstown, plus 43% on 3½" and 4", R2; Youngstown Y1; Aliquippa, Pa. J5. Fontana, Calif. K1 quotes 11 points lower on ½" and larger continuous weld and 31% on 3½" and 4".

Columns B & E: Sparrows Point, Md. B2.

Columns C & F: Indiana Harbor, Ind., ½" through 3", Y-1; Alton, Ill. (Lorain, O., base) L1.

Column D: Etna, Pa. N2; Monaca, Pa. quotes 1 pt lower on ½" through 3", P9; Sharon, Pa. M6, quotes 1 pt lower on ⅛", 1 pt higher on ⅜" and 1 pt lower on ½" through 3"; Butler, Pa., ⅛" through ⅜", F6; Benwood, W. Va., W10 except 3½ pts lower on ⅛", 2½ pts lower on ¼", 3 pts lower on ⅜" Wheatland, Pa., except 2 pts lower on ⅛", ¼" and ⅜" W9. Following make ½" and larger; Lorain, N3; Youngstown, plus 24.5% on 3½" and 4", R2; Youngstown, Y1; Aliquippa, Pa. J5. Fontana, Calif. K1 quotes 8 pts lower on ½" and larger continuous weld and 15.5% on 3½" and 4".

SEAMLESS AND ELECTRIC WELD

Size Inches	List Per Ft	Pounds Per Ft	Carload Discounts from List, % Seamless Black A	Seamless Galv. B	Elec. Weld Black C	Elec. Weld Galv. D
2	37.0c	3.68	36.0	17.5	36.0	17.5
2½	58.5	5.82	39.0	20.5	39.0	20.5
3	76.5	7.62	39.0	20.5	39.0	20.5
3½	92.0	9.20	41.0	22.5	41.0	22.5
4	$1.09	10.89	41.0	22.5	41.0	22.5
5	1.48	14.81	41.0	22.5	41.0	22.5
6	1.92	19.18	41.0	22.5	41.0	22.5

Column A: Aliquippa J5; Ambridge N2; Lorain N3; Youngstown Y1.

Column B: Aliquippa J5; Lorain, O. N3; Youngstown, Y1.

Columns C & D: Youngstown R2.

BOILER TUBES

Net base c.l. prices, dollars per 100 ft, mill; minimum wall thickness, cut lengths 10 to 24 ft. inclusive.

O.D. In.	B.W. Ga.	Seamless H.R.	Seamless C.D.	Elec. Weld H.R.	Elec. Weld C.D.
1	13	12.36	14.39	13.96	13.96
1¼	13	14.63	17.05	14.19	16.54
1½	13	16.17	19.02	15.68	18.45
1¾	13	18.39	21.64	17.84	20.99
2	13	20.61	24.24	19.99	23.51
2¼	13	22.96	27.03	22.27	26.22
2¼	12	25.29	29.76	24.53	28.87
2½	12	27.71	32.58	26.88	31.60
2¾	12	29.36	34.53	28.48	33.49
3	12	30.82	36.27	29.90	35.18
3¼	11	35.87	42.22	34.79	40.95
3½	11	38.52	45.35	37.36	43.99
4	10	47.82	56.25	46.39	54.56
4½	9	63.37	74.59	61.47	72.35
5	9	73.37	86.32	71.17	83.73
6	7	112.62	132.51	....	....

Boiler tube producers include Babcock & Wilcox Tube Co., National Tube Co., Globe Steel Tubes Co., Pittsburgh Steel Co., Republic Steel Corp., Standard Tube Co.

CLAD STEELS

(Cents per pound)

Cladding	Plates Carbon Base 10%	Plates Carbon Base 20%	Strip Cold-Rolled Carbon Base 10% Both Sides	Sheets Carbon Base 10%	Sheets Carbon Base 20%	Sheets Copper Base Both Sides
Stainless 302	....	....	....	19.75	21.50–22.50	75.00
304	22.50	26.50	....	20.75	22.50–24.00	77.00
305	....	....	....	....	....	79.00
309	28.00	32.00	....	....	....	....
310	34.00	38.00	....	....	....	105.00
316	27.00	31 00	....	26.00	28.00–32.00	....
317	32.00	36.00	....	....	....	....
318	31.00	35.00	....	....	....	....
321	24.00	28.00	....	23.00	25.00	90.00
347	25.00	29.00	....	24.00	26.00–30.00	94.00
405	18.75	24.75	....	....	....	....
410	18.25	24.25	....	....	....	....
430	18.25	24.25	....	....	....	....
Nickel	31.00	41.00	31.50	41.00	....	88.00
Inconel	39.00	51.00	....	....	....	140.00
Monel	32.00	42.00	26.50	33.50	....	83.00
Copper*	....	....	20.70†	25.65‡	....	....

* Deoxidized, † 17.20c for hot-rolled. ‡ 22.40c for hot-rolled. Production points for carbon base products: Stainless plates, sheets, Conshohocken, Pa. A3 and New Castle, Ind. I-4; stainless-clad plates, Claymont, Del. W16 and Coatesville L7; nickel, inconel, monel-clad plates, Coatesville L7; nickel, monel, copper-clad strip, Carnegie, Pa. S16. Production point for copper-base sheets is Carnegie A13.

BOLTS, NUTS

CARRIAGE, MACHINE BOLTS

(F.o.b. midwestern plants; per cent off list for less than case lots to consumers)

6 in. and shorter:	
½-in. & smaller diam.	27
⅝-in. & ⅞-in.	29
1-in. and larger	26
Longer than 6 in.:	
All diams.	22
Lag bolts, all diams.:	
6 in. and shorter	30
over 6 in. long	28
Ribbed Necked Carriage	26
Blank	40
Plow	40
Step, Elevator, Tap, and Sleigh Shoe	28
Tire bolts	20
Boiler & Fitting-Up bolts	37

NUTS

H.P. & C.P. Reg. & Heavy Square:	Reg.	Heavy
½-in. and smaller	25	
⅝-in. & ⅞-in.	23	
1-in.-1½-in.	23	
1⅝ in. and larger	16	
H.P. Hex.:		
½-in. & smaller	33	29
⅝-in. & ⅞-in.	28	25
1-in.-1½-in.	25	23
1⅝ in. & larger	17	16
C.P. Hex.:		
½-in. & smaller	33	29
⅝-in. & ⅞-in.	30	27
1-in. & 1½ in.	27	24
1⅝ in. & larger	20	17

SEMIFINISHED NUTS

American Standard

(Per cent off list for less than case or keg quantities)

	Hvy.	Reg.	Lght.
½-in. and smaller	35	41	41
⅝-in. & ⅞-in.	30	36	36
1-in.-1½ in.	27	31	33
1⅝-in.&larger	17	21	..

STEEL STOVE BOLTS

(F.o.b. plant; per cent off list in packages)

Plain finish ..... 63.5 & 10
Plated finishes ... 50 & 10

HEXAGON CAP SCREWS

(1020 steel; packaged; per cent off list)

6 in. or shorter:	
¼-in. through ⅝-in.	50
¾-in. through 1 in.	43
Longer than 6 in.:	
¼-in. through ⅝-in.	33
¾-in. through 1 in.	13

SQUARE HEAD SET SCREWS

(Packaged; per cent off list)

1 in. diam. x 6 in. and shorter	46
1 in. and smaller diam. x over 6 in.	33

HEADLESS SET SCREWS

(Packaged; per cent off list)

No. 10 and smaller	41
¼-in. diam. & larger	24
N.F. thread, all diams.	18

RIVETS

F.o.b. midwestern plants
Structural ½-in., larger 7.25c
7/16-in., under .....43 off

Washers, Wrought

F.o.b. shipping point, to jobbers .....Net to $1 off

ELECTRODES

(Threaded, with nipples, unboxed, f.o.b. plant)

GRAPHITE

Inches Diam.	Inches Length	Cents per lb
17,18,20	60,72	16.00
8 to 16	48,60,72	16.50
7	48,60	17.75
6	48,60	19.00
4, 5⅛	40	19.50
3	40	20.50
2½	24,30	21.00
2	24,30	23.00

CARBON

40	100,110	7.50
35	100,110	7.50
30	84,110	7.50
24	72 to 104	7.50
17 to 20	34,90	7.50
14	60,72	8.00
10,12	60	8.25

STAINLESS STEEL

(Cents per pound)

Type	Sheets	C.R. Strip	Bars Wire Structurals
301	39.00	32.00	30.00
302	39.00	34.50	30.00
303	41.00	38.00	32.50
304	41.00	36.50	31.50
309	53.50	52.50	43.00
316	54.50	56.50	47.50
321	47.00	46.00	35.50
347	51.50	50.00	40.00
410	34.50	28.50	24.50
416	35.00	35.00	25.00
420	42.00	45.00	30.00
430	37.00	29.00	25.00
501	25.50	24.00	13.00
502	26.50	25.00	14.00

Baltimore, Types 301 through 347 sheet, except 309 E2.
Baltimore, bars wire and structurals A10.
Brackenridge, Pa., sheets A4.
Bridgeville, Pa., bars, wire, sheets & strip U4*.
Butler, Pa., sheets and strip except Types 303, 309, 416, 420, 501 & 502 A10.
Carnegie, Pa., strip except Types 303, 501, 502 S18*.
Cleveland, strip A7.
Detroit, strip, except Types 303, 309, 321, 416, 420, 501 and 502 M1*.
Dunkirk, N.Y., bars, wire A4.
Duquesne, Pa., bars C3.
Fort Wayne, Ind., bars and wire, except Types 501 and 502 J6.
Gary, Ind., sheets except Type 416 C3.
Harrison, N. J., strip C18*.
Harrison, N. J., Types 302, 304, 316 wire and strip D6*.
Massillon, all products R2*.
McKeesport, Pa., bars; sheets except Type 416 C3.
McKeesport, Pa., bars & wire except Types 301, 309, 501 & 502; strip Types 410 & 430 only F2.
Middletown, O., sheets except Types 303, 416, 420, 501 and 502 A10.
Midland, sheets & Strip C18*.
Munhall, Pa., bars C3.
Pittsburgh, sheets C18*.
Reading, Pa., bars & strip except Type 309 bars quoted 41.00c C4*.
So. Chicago, Ill., bars & structurals C3.
Syracuse, N. Y., bars, wire & structurals C18*.
Titusville, Pa., bars U4*.
Wallingford, Conn., strip, except 309, W2 quotes 1.25 cents lower.
Washington, Pa., bars, sheets & strip J3*.
Washington, Pa., Types 301 through 347 sheets & strip as listed except 303 & 309; 316 sheets 58.00c, strip 60.00c W4*.
Watervliet, N. Y., structurals & bars A4.
Waukegan, bars & wire A7.
West Leechburg, Pa., strip, A4.
Youngstown, strip C8*.

* Quotes 1.50 cents lower.

COAL, CHEMICALS

Spot, cents per gallon, ovens
Pure benzol 25.00
Tuluol, one deg...18.25-25.75
Industrial xylol ..19.75-27.50
Per ton bulk, ovens
Sulphate of ammonia .$32-45
Cents per pound, ovens
Phenol, 40 (carlots, returnable drums) 13.50
Do., less than carlots..14.25
Do., tank cars 12.50

FLUORSPAR

Metallurgical grade, f.o.b. shipping point, in Ill., Ky., net tons, carloads, effective CaF_2 content, 70% or more, $37; less than 60%, $34.
Imported, net ton, duty paid, metallurgical grade, $39-40.

METAL POWDERS

(Per pound, f.o.b. shipping point in ton lots for minus 100 mesh, except as otherwise noted.)

	Cents
Sponge Iron:	
98+% Fe, carlots	15.00
Swedish, c.i.f. New York, in bags	7.40-8.50
Electrolytic Iron:	
Annealed, 99.5% Fe	39.50
Unannealed, 99+% Fe	33.50
Unannealed 99+% Fe (minus 325 mesh)	48.50
Carbonyl Iron:	
97.9-99.8%, size 5 to 10 microns	70.00-135.00
Aluminum:	
Carlots, freight allowed	27.00
Atomized, 500 lb drums, freight allowed	30.00
Brass, 10-ton lots	28.25-30.25
Copper:	
Electrolytic	31.75
Reduced	31.50
Lead	18.50
Manganese:	
Minus 100-mesh	52.00-55.00
Minus 35 mesh	48.00
Minus 200 mesh	56.00
Nickel unannealed	66.00
Nickel-Silver, 10-ton lots	41.75
Silicon	34.00
Solder (plus cost of metal)	8.50
Stainless Steel, 302	75.00
Tin	88.50
Zinc, 10-ton lots	20.50-28.00
	Dollars
Tungsten:	
99%, minus 80 to 200 mesh, freight allowed, over 1000 lb	2.90
1000 lb	2.95
less than 1000 lb.	3.00
98.8%, minus 65 mesh, freight allowed, 1000 lb and over	2.90
less than 1000 lb.	3.00
Molybdenum:	
99%, minus 80 to 200 mesh, over 500 lb	2.25
200 to 500 lb	2.60
less than 200 lb.	2.75
82-88%, freight allowed, 2000 lb and over	2.40
less than 2000 lb.	2.45
Chromium, electrolytic 99% Cr min.	3.50

METALLURGICAL COKE

Price per net ton

BEEHIVE OVENS

Connellsvll, fur. .$14.00-14.50
Connellsvll, fdry. .15.00-16.00
New River, foundry...19.00
Wise county, foundry..15.50
Wise county, furnace..15.20

OVEN FOUNDRY COKE

Kearney, N. J., ovens .$22.00
Everett, Mass., ovens
New England, del.‡ 23.40
Chicago, ovens 21.00
Chicago del. .....‡22.45
Detroit, del. 24.91
Terre Haute, ovens....21.20
Milwaukee, ovens 21.75
Indianapolis, ovens 20.75
Chicago, del. 24.12
Cincinnati, del. 23.67
Detroit, del. 24.65
Ironton, O., ovens. 20.40
Cincinnati, del. 22.71
Painesville, O., ovens .21.90
Buffalo, del. 24.02
Cleveland, del. 23.62
Erie, del. 22.04
Birmingham, ovens 19.15
Birmingham, del. ...20.20
Philadelphia, ovens ...21.25
Neville Island, Pa., ovens 21.00
Swedeland, Pa. ovens.21.20
Portsmouth, O., ovens.20.15
Cincinnati, del. 22.71
Detroit, ovens 21.65
Detroit, del. 22.65
Buffalo, del 24.00
Flint, del. 24.09
Pontiac, del. 23.04
Saginaw, del. 24.40

Includes representative switching charge of: *, $1.05; †, $1.45, one-track charge being $1.20, two tracks $1.40, and three or more tracks $1.50. ‡ Or within $4.15 freight zone from works.

WAREHOUSE STEEL PRODUCTS

(Prices, cents per pound, for delivery within switching limits, subject to extras)

	SHEETS			STRIP		BARS			Standard Structural Shapes	PLATES	
	H.R. 18 Ga., Heavier*	C.R.	Galv. 10 Ga.†	H.R.*	C.R.*	H.R. Rds.	C.F. Rds.	H.R. Alloy 4140§		Carbon	Floor
New York (city)	5.75	6.84	7.40	6.04	...	5.95	6.64	8.60	5.85	6.10	7.54
New York(c'try)	5.55	6.64	7.20	5.84	...	5.75	6.44	8.40	5.65	5.90	7.34
Boston (city) ..	5.95	6.75	7.37	5.90	...	5.80	6.39	8.70	5.95	6.28	7.48
Boston (c'try) .	5.75	6.55	7.17	5.70	...	5.60	6.19	8.50	5.75	6.08	7.28
Phila. (city) ..	6.45	6.60	7.10	5.99	...	5.85	6.46	8.40	5.70	5.90	7.00
Phila. (c'try)..	6.20	6.35	6.85	5.65	...	5.60	6.21	8.15	5.45	5.65	6.75
Balt. (city) ...	5.35	6.59	6.66	5.79	...	5.79	6.39	...	5.89	5.60	7.24
Balt. (c'try) ..	5.15	6.39	6.46	5.59	...	5.59	6.19	...	5.69	5.40	7.04
Norfolk, Va. ..	6.10	...	...	6.30	...	6.15	7.20	...	6.20	6.15	7.55
Richmond, Va..	5.35	...	6.90	5.63	...	5.53	6.30	...	5.63	5.45	7.13
Wash. (w'hse).	5.56	6.80	6.73	6.00	...	6.00	6.62	...	6.10	5.81	7.45
Buffalo (del.)..	5.35	6.15	7.10	5.61	...	5.35	5.95	10.10††[3]	5.55	5.85	7.15
Buffalo (w'hse).	5.15	5.95	6.90	5.41	...	5.15	5.75	9.90††[3]	5.35	5.65	6.95
Pitts.(w'hse) ..	5.15	5.95*	6.60-6.70	5.20	6.15	5.10	5.75	9.55††	5.25	5.35	6.60
Detroit (w'hse).	5.33	6.08*	7.09	5.49	...	5.39	5.91	9.86††[3]	5.64	5.79	6.88
Cleveland (del.)	5.35	6.15	7.30	5.44	6.35	5.32	5.95	8.31	5.57	5.72	6.92
Cleve. (w'hse) .	5.15	5.95	7.10	5.24	6.15	5.12	5.75	8.16	5.37	5.52	6.72
Cincin. (city)..	5.57	6.14	6.54	5.50	...	5.50	6.11	...	5.79	5.94	7.10
Chicago (city) .	5.35	6.15	7.05	5.30	...	5.30	5.85	9.75††[3]	5.45	5.60	6.80
Chicago (w'hse)	5.15	5.95	6.85	5.10	...	5.10	5.65	9.55††[3]	5.25	5.40	6.60
Milwaukee(city)	5.49	6.29	6.94	5.44	...	5.44	6.09	9.89††[3]	5.59	5.74	6.94
Milwau. (c'try).	5.29	6.09	7.14	5.24	...	5.24	5.89	9.69††[3]	5.39	5.54	6.74
St. Louis (del.).	5.68	6.48	7.28	5.63	...	5.63	6.28	10.08††[3]	5.78	5.93	7.13
St. L. (w'hse).	5.48	6.28	7.08	5.43	...	5.43	6.08	9.88††[3]	5.58	5.73	6.93
Kans. City(city)	5.95	6.75	7.60	5.90	...	5.90	6.55	...	6.05	6.20	7.60
KansCity(w'hse)	5.75	6.55	7.40	5.70	...	5.70	6.35	...	5.85	6.00	7.40
Omaha, Nebr. .	6.13‡	...	8.33	6.13	...	6.18	6.98	...	6.18	6.38	7.83
Birm'ham (del.)	5.30	6.10	6.30[3]	5.25	...	5.25	6.88	...	5.40	5.55	7.83
Birm'hm(w'hse)	5.15	5.95	6.15[3]	5.10	...	5.10	...	...	5.25	5.40	...
Los Ang. (city)	6.10	7.65	7.80	6.15	8.55	6.10	7.75	...	6.10	6.20	8.40
L. A. (w'hse)..	5.90	7.45	7.60	5.95	8.35	5.90	7.55	...	5.90	6.00	8.20
San Francisco .	6.50[9]	7.60[3]	7.50[3]	7.45[9]	8.25[3]	6.30[9]	7.55	...	6.30[9]	6.40[9]	8.50[9]
Seattle-Tacoma.	6.60	8.15[3]	...	6.85	...	6.35	8.50	10.10	6.20	6.35[7]	8.40[7]

* Prices do not include gage extras; † prices include gage and coating extras, except Birmingham (coating extra excluded) and Los Angeles (gage extra excluded); ‡ includes extra for 10 gage; § as rolled; †† as annealed. Base quantities, 2000 to 9999 lb except as noted: Cold-rolled strip, 2000 lb and over; cold-finished bars, 2000 lb and over; [3]—500 to 1499 lb; [5]—450 to 1499 lb; [6]—1000 to 1999 lb; [7]—300 to 999 lb; [9]—400 to 9999 lb.

REFRACTORIES

(Prices per 1000 bricks, f.o.b. plant)

FIRE CLAY BRICK

Super Duty: St. Louis, Vandalia, Farber, Mexico, Mo., Olive Hill, Ky., Clearfield, or Curwensville, Pa., Ottawa, Ill., $106. Hard-fired, $142 at above points.

High-Heat Duty: Salina, Pa. $91; Woodbridge, N. J., St. Louis, Farber, Vandalia, Mexico, Mo., West Decatur, Orviston, Clearfield, Beach Creek, or Curwensville, Pa., Olive Hill, Hitchins, Haldeman, or Ashland, Ky., Troup, or Athens, Tex., Stevens Pottery, Ga., Portsmouth, or Oak Hill, O., Ottawa, Ill., $86.

Intermediate-Heat Duty: St. Louis, or Vandalia, Mo., West Decatur, Orviston, Beach Creek, or Clearfield, Pa., Olive Hill, Hitchins, or Haldeman, Ky., Athens, or Troup, Tex., Stevens Pottery, Ga., Portsmouth, O., Ottawa, Ill., $80.

Low-Heat Duty: Oak Hill, or Portsmouth, O., Clearfield, Orviston, Pa., Bessemer, Ala., $72; Ottawa, Ill., $70.

LADLE BRICK

Dry Press: Freeport, Merill Station, Clearfield, Pa., Irondale, Wellsville, O., Chester, W. Va., New Cumberland, W. Va., $60.

Wire Cut: Chester, W. Va., Wellsville, O., New Cumberland, W. Va., $58.

MALLEABLE BUNG BRICK

St. Louis, Mo., Olive Hill, Ky., $96; Ottawa, Ill., $90; Beach Creek, Pa., $86.

SILICA BRICK

Mt. Union, Claysburg, or Sproul, Pa., Portsmouth, O., Ensley, Ala., $86; Hays, Pa., $91; Joliet or Rockdale, Ill., E. Chicago, Ind., $95; Lehi, Utah, Los Angeles, $101.

Eastern Silica Coke Oven Shapes (net ton): Claysburg, Mt. Union, Sproul, Pa., Birmingham, $84.

Illinois Silica Coke Oven Shapes (net ton): Joliet or Rockdale, Ill., E. Chicago, Ind., Hays, Pa., $85.

BASIC BRICK

(Base prices per net ton; f.o.b. works, Baltimore or Chester, Pa.)

Burned chrome brick, $66; chemical-bonded chrome brick, $69; magnesite brick, $91; chemical-bonded magnesite, $80.

MAGNESITE

(Base prices per net ton, f.o.b. works, Chewelah, Wash.)

Domestic dead - burned, ¾" grains; bulk, $33; single paper bags, $38.

DOLOMITE

(Base prices per net ton)

Domestic, dead-burned bulk; Billmeyer, Blue Bell, Williams, Plymouth Meeting, Pa., Millville, W. Va., Narlo, Millersville, Martin, Gibsonburg, Woodville, O., $12.25; Thornton, McCook, Ill., $12.35; Dolly Siding, Bonne Terre, Mo., $12.45.

ORES

LAKE SUPERIOR IRON ORE

Gross ton, 51½% (natural), lower lake ports. After Jan. 25, 1950, increases or decreases, if any, in upper lake rail freight, dock handling charges and taxes thereon are for buyer's account.

Old range bessemer	$8.10
Old range nonbessemer	7.95
Mesabi bessemer	7.85
Mesabi nonbessemer	7.70
High phosphorus	7.70

EASTERN LOCAL ORE

Cents per unit, del E. Pa.

Foundry and basic 56.62% concentrates contract	16.00

FOREIGN ORE

Cents per unit, c.i.f. Atlantic ports

Swedish basic, 60 to 68%:	
Spot	17.00
Long-term contract	15.00
North African hematites	15.75
Brazilian iron ore, 68-69%	18.00

TUNGSTEN ORE

Wolframite, scheelite, net ton unit, duty paid	$20-22

MANGANESE ORE

Long term contracts, nominal; nearby, 48%, duty paid, 79.8c-81.8c per long ton unit, c.i.f. U. S. ports; prices on lower grades adjusted to manganese content and impurities.

CHROME ORE

Gross ton, f.o.b. cars, New York, Philadelphia, Baltimore, Charleston, S. C., plus ocean freight differential for delivery to Portland, Oreg., or Tacoma, Wash.

Indian and African	
48% 2.8:1	$32.50
48% 3:1	35.00-36.00
48% no ratio	26.00
South African Transvaal	
44% no ratio	$17.00-18.00
45% no ratio	17.30-18.30
48% no ratio	26.00
50% no ratio	27.00-27.50
Brazilian	
44% 2.5:1 lump	$32.00
Rhodesian	
45% no ratio	$20.00-21.00
48% no ratio	26.00
48% 3:1 lump	35.00-36.00
Domestic—rail nearest seller	
48% 3:1	$39.00

MOLYBDENUM

Sulphide concentrates per lb, molybdenum content, mines	$0.90

FERROALLOYS

MANGANESE ALLOYS

Spiegeleisen: (19-21% Mn, 1-3% Si), Carlot per gross ton, $65, Palmerton, Pa.; $66, Pittsburgh and Chicago; (16% to 19% Mn) $1 per ton lower.

Standard Ferromanganese: (Mn 78-82%, C 7% approx.) Carload, lump, bulk $172 per gross ton of alloy, cl., packed, $184; gross ton lots, packed, $199; less gross ton lot, packed, $216; f.o.b. Alloy, W. Va., Niagara Falls, N. Y., or Welland, Ont. Base price: $174, f.o.b. Birmingham and Johnstown, Pa., furnaces; $172, Sheridan, Pa.; $175, Etna, Pa. Shipment from Pacific Coast warehouses by one seller add $33 to above prices, f.o.b. Los Angeles, San Francisco, Portland, Oreg. Shipment from Chicago warehouse, ton lots, $214; less gross ton lots, $231 f.o.b. Chicago. Add or subtract $2.15 for each 1% or fraction thereof, of contained manganese over 82% and under 78%, respectively.

Low-Carbon Ferromanganese, Regular Grade: (Mn 80-85%). Carload, lump, bulk, max. 0.10% C, 24.75c per lb of contained Mn, carload packed 25.5c, ton lot 26.6c, less ton 27.8c. Delivered. Deduct 0.5c for max. 0.15% C grade from above prices, 1c for max. 0.30% C, 1.5c for max. 0.50% C, and 4.5c for max. 75% C—max. 7% Si. **Special Grade:** (Mn 90% approx., C 0.07% max., P 0.06% max.). Add 0.5c to above prices. Spot, add 0.25c.

Medium-Carbon Ferromanganese: (Mn 80-85%, C 1.5% max., Si 1.5% max.). Carload, lump, bulk 18.15c per lb of contained Mn, carload packed 18.9c, ton lot 20.0c, less ton 21.2c. Delivered. Spot, add 0.25c.

Manganese Metal, 2" x D (Mn 96% min., Fe 2% max., Si 1% max., C 0.2% max.): Carload lump bulk, 29c per lb of metal; packed, 35.5c; ton lot 31.25c, less ton lot 33.25c. Delivered. Spot, add 2c.

Manganese, Electrolytic: Less than 250 lb, 35c; 250 lb to 1999 lb, 32c; 2000 to 39,999 lb, 30c; 40,000 lb or more, 28c. Premium for hydrogen-removed metal 1.5c per pound, f.o.b. cars Knoxville, Tenn. Freight allowed to St. Louis or to any point east of Mississippi.

Silicomanganese: (Mn 65-68%). Contract, lump, bulk, 1.50% C grade, 18-20% Si, 8.95c per lb of alloy, carload packed, 9.70c, ton lot 10.60c, less ton 11.60c. Freight allowed. For 2% C grade, Si 15-17%, deduct 0.2c from above prices. Spot, add 0.25c.

CHROMIUM ALLOYS

High-Carbon Ferrochrome: Contract, c.l., lump, bulk, 20.5c per lb of contained Cr. c.l., packed 21.4c, ton lot 22.55c, less ton 23.95c. Delivered: Spot, add 0.25c.

"SM" High-Carbon Ferrochrome: (Cr 60-65%, Si 4-6%, Mn 4-6%, C 4-6%). Add 1.1c to high-carbon ferrochrome prices.

(*Please turn to page 135*)

Kennecott Quotes Uniform Price

Large copper producer adopts a uniform selling basis on domestically produced metal, quoting 22.50c in carload lots, f. o. b. railroad cars point of destination

New York—Producers of domestic copper are slow to follow a uniform delivered price basis initiated by Kennecott Copper Corp. None have at this writing.

Kennecott has opened books for August at a uniform price of 22.50c for electrolytic copper, delivered to any destination in the United States. Kennecott's foreign-produced fire refined copper is selling at 0.25 cent per pound below the domestic price of electrolytic delivered, with import duty of 2 cents a pound for account of buyer.

Hearings on Duty—Many who have bought dutiable copper have placed the metal in bond, pending further developments. New congressional hearings on proposed suspension of the duty begin July 10. Many trade authorities hold the opinion the duty eventually will come off for at least nine months; therefore, reimposition of the duty has had slight effect.

Some consumers of Kennecott Copper will benefit from the uniform pricing policy, notably those at more distant points who are paying 0.125 to 0.25 cent above the Valley price. Others, receiving copper from the company's eastern refinery and receiving $1 to $2 allowance per ton from the Valley price, will lose this advantage.

Within a few weeks, Kennecott will be shipping metal from its new refinery at Garfield, Utah. Copper from this plant will be competitive with that coming from any refinery in the country.

A more complicated pricing problem confronts fabricators of copper and brass products. One leading seller of lake copper has in effect gone on a uniform price basis at 22.62½c a pound to all destinations in the United States. Should the change-over to uniform price basis become general on electrolytic copper, it would be gradual, many traders hold.

British Seek Lead Tonnage

New York—Reflecting the Fourth of July holiday and shutdowns of many lead consuming plants for mass vacations, trading in that metal last week was quiet. Prices held unchanged on the basis of 10.80c, St. Louis.

The British Ministry of Supply is seeking 2500 tons of chemical grade from the United States and Canada for July-August delivery. In view of the plentiful supply in this country, the inquiry is expected to be filled shortly.

Zinc Market Remains Strong

New York—Undertone of the domestic zinc market continues strong with producers quoting 15.00c, East St. Louis, for prime western. Due to the holiday and scattered vacations at consumers' plants, plus tight supplies, actual bookings were light.

Some export business has been done in prime western at a price equivalent to 14.75c, f.a.s. Gulf ports. This price is only ¼-cent under the domestic price compared with the ½-cent differential which had prevailed previously.

Tin Spurts on Supply Fears

Washington—Most serious crisis in international affairs since the end of World War II finds the United States far short of its tin stockpiling goals. While actual figures are not released by the government, it is conceded in authoritative quarters that the program has lagged well behind the pace necessary to accumulate the 250,000 to 300,000 ton reserve which is considered the minimum to meet a national emergency. The stockpile is estimated at slightly over 100,000 tons.

Total United States tin metal stocks, excluding the stockpile, decreased from 43,890 tons as of Apr. 1 to 42,270 tons as of May 1, 1950. Importers' and consumers' inventories are expected to show an increase on June 1 because of the large May imports of tin metal. Imports during that month jumped to a record high of 11,029 tons, with at least 2000 tons of that figure received in the first few days of the month. The average for April and May was about 6900 tons which compares favorably with the first-quarter average for 1950. Imports of concentrates continue at a slow pace with only 1392 tons received in April, or less than half of the normal average for the last two years. Imports are expected to show marked improvement soon as a result of an agreement which has been made between Bolivian tin producers and the Reconstruction Finance Corp.

Government-owned tin is being sold by the RFC directly through its Washington office. Inquiries should be addressed to the Tin Division, Office of Production, Reconstruction Finance Corp., 811 Vermont Ave., N.E., Washington 25. The New York market has advanced steadily in the last two weeks from 76.37½c to 80.12½c for Straits spot.

United States smelter production was 2484 tons of pig tin from new ore in April and 2852 tons in May. In the first five months of 1950, the smelter is about 2500 tons below the comparable period for last year. The 1950 total does not include 400 tons of Copan metal, produced chiefly from remelts and which contains about 84 per cent tin content.

Tin consumption in the United States continues at a level in excess of 1949 with 7434 tons of primary and secondary tin consumed in April. Consumption of primary metal for the first four months of 1950 total 21,069 tons, or at an annual rate of 63,000 tons. April's consumption of primary metal was 5579 tons compared with 5646 tons in March. April's consumption of primary tin and tin in alloys amounted to 7499 tons compared with a monthly average of 5955 tons in 1949. The April total included 3037 tons for tin and terne plate, 1401 tons for brass and bronze, 1827 tons for solder, 407 tons for babbitt and 303 tons for tinning, or 93 per cent of the total.

STEEL'S Metal Price Averages for June, 1950

(Cents per pound)

Electrolytic Copper, del. Conn.	22.231
Lead, St. Louis	11.608
Prime Western Zinc, E. St. Louis	14.769
Straits Tin, New York	77.668
Primary Aluminum Ingots, del.	17.500
Antimony, f.o.b. Laredo, Tex.	24.500
Nickel, f.o.b. refinery	48.000
Silver, New York	72.750

More Canadian Aluminum

Shawinigan Falls, Que.—A third pot line at the local smelter of the Aluminum Co. of Canada Ltd., will be reopened, said D. H. Ferguson, works manager. The plant was closed down last year when severe drought conditions curtailed the hydroelectric supply.

Congo Swaps Tin for Machinery

Washington—Tin from the Belgian Congo will be added to the United States government's stockpile with the help of $1.7 million in Marshall Plan funds, the Economic Cooperation Administration said.

Under a contract, recently signed by ECA with Compagnie Geologique et Minera des Ingenieurs et Industrial Belges, the dollars will be spent for mining machinery to be purchased in the United States. The Belgian firm will repay ECA in tin to be added to our stockpile.

The contract calls for the development of mines in the Manono area, about 400 miles north of Elizabethville, in the eastern section of the Congo. The mines also produce columbite and tantalite. During World War II, the Congo was the only supplier of high grade tin ore available outside Japanese-held areas in the Far East.

ECA pointed out that the development of the tin mines not only will make available materials in short supply in the U. S. but will aid the Belgian economy by increasing the capacity of a dollar-earning export, and will contribute to the progress of one of the under-developed areas of the world.

The Manono deposits have been worked by the Belgian company since 1919, but mechanization of the mines was not started until 1932.

NONFERROUS METALS

(Cents per pound, carlots, except as otherwise noted)

Primary Metals

Copper: Electrolytic 22.50c, Conn. Valley; Lake 22.62½c, Conn. Valley.

Brass Ingot: 85-5-5-5 (No. 115) 21.75-22.00c; 88-10-2 (No. 215) 29.00c; 80-10-10 (No. 305) 25.50c; No. 1 yellow (No. 405) 18.25-19.00c.

Zinc: Prime western 15.00c; brass special 15.25c; intermediate 15.50c, East St. Louis; high grade 16.10c, delivered.

Lead: Common 10.80c; chemical 10.90c; corroding 10.90c, St. Louis.

Primary Aluminum: 99% plus, ingots 17.50c, pigs 16.50c. Base prices for 10,000 lb and over. Freight allowed on 500 lb or more, but not in excess of rate applicable on 30,000 lb c.l. orders.

Secondary Aluminum: Piston alloys 18.25-18.75c; No. 12 foundry alloy (No. 2 grade) 17.75-18.00c; steel deoxidizing grades, notch bars, granulated or shot: Grade 1, 18.75c; grade 2, 18.00c; grade 3, 17.25c; grade 4, 16.75c. Prices include freight at carload rate up to 75 cents per 100 lb.

Magnesium: Commercially pure (99.8%) standard ingots, 10,000 lb and over, 21.50c, f.o.b. Freeport, Tex.

Tin: Grade A, prompt and July 80.12½c; Aug.-Sept. 80.00c; Oct. del. 79.87½c.

Antimony: American 99-99.8% and over but not meeting specifications below 24.50c; 99.8% and over (arsenic 0.05% max.; other impurities 0.1% max.) 25.00c; f.o.b. Laredo, Tex., for bulk shipments. Foreign, 99%: Chinese and Yugoslavian, 22.00c; English and Belgian, prompt, 23.00c, New York.

Nickel: Electrolytic cathodes, 99.9%, base sizes at refinery, unpacked, 48.00c; 25-lb pigs, 50.50c; "XX" nickel shot, 51.50c; "F" nickel shot or ingots, for addition to cast iron, 48.50c. Prices include import duty.

Mercury: Open market, spot, New York $70-$73 per 76-lb flask.

Beryllium-Copper: 3.75-4.25% Be, $24.50 per lb contained Be.

Cadmium: "Regular" straight or flat forms, $2.15 del.; special or patented shapes, $2.30.

Cobalt: 97-99%, $1.80 per lb for 550 lb (keg); $1.80 per lb for 100 lb (case); $1.87 per lb under 100 lb.

Gold: U. S. Treasury, $35 per ounce.

Silver: Open market, New York, 72.75c per oz.

Platinum: $66-69 per ounce.

Palladium: $24 per troy ounce.

Iridium: $100 per troy ounce.

Titanium (sponge form): $5 per pound.

Rolled, Drawn, Extruded Products

COPPER AND BRASS

(Base prices, cents per pound, f.o.b. mill; based on 22.50-cent copper.)

Sheet: Copper 37.43; yellow brass 34.19; commercial bronze, 95%, 37.38; 90%, 36.93; red brass, 85% 35.96; 80%, 35.52; best quality, 35.04; nickel silver, 18%, 48.39; phosphor-bronze, grade A, 5% 55.11.

Rods: Copper, hot-rolled 33.28; cold-drawn 34.53; yellow brass free cutting, 28.54; commercial bronze, 95% 37.07; 90% 36.62; red brass 85% 35.65; 80% 35.21.

Seamless Tubing: Copper 37.47; yellow brass 37.20; commercial bronze 90% 39.59; red brass 85% 38.87; 80% 38.43.

Wire: Yellow brass 34.48; commercial bronze, 95% 37.67; 90% 37.22; red brass, 85% 36.25; 80% 35.81; best quality brass 35.33.

Copper Wire: Bare, soft, f.o.b. eastern mills, c.l. 26.67, l.c.l. 27.17, 100,000 lb lots 26.545; weatherproof, f.o.b. eastern mills, c.l. 28.10, l.c.l. 28.60, 100,000 lb lots 27.85; magnet, del., 15,000 lb or more 32.50, l.c.l. 33.25.

ALUMINUM

(30,000 lb base; freight allowed on 500 lb or more, but not in excess of rate applicable on 30,000 lb c.l. orders.)

Sheets and Circles: 2S and 3S mill finish c.l.

Thickness Range, Inches	Widths or Diameters, In., Incl.	Flat Sheet Base*	Coiled Sheet Base	Coiled Sheet Circle† Base
0.249-0.136	12-48	27.4	...	...
0.135-0.096	12-48	27.9	...	...
0.095-0.077	12-48	28.4	26.5	30.1
0.076-0.061	12-48	29.0	26.7	30.3
0.060-0.048	12-48	29.2	26.9	30.6
0.047-0.038	12-48	29.6	27.1	30.9
0.037-0.030	12-48	30.0	27.5	31.4
0.029-0.024	12-48	30.4	27.8	31.8
0.023-0.019	12-36	31.0	28.2	32.3
0.018-0.017	12-36	31.6	28.8	33.1
0.016-0.015	12-36	32.3	29.4	34.0
0.014	12-24	33.2	30.2	35.1
0.013-0.012	12-24	34.1	30.9	36.0
0.011	12-24	35.1	31.8	37.2
0.010-0.0095	12-24	36.1	32.8	38.5
0.009-0.0085	12-24	37.3	33.9	40.0
0.008-0.0075	12-24	38.6	35.1	41.6
0.007	12-18	40.0	36.4	43.4
0.006	12-18	41.5	37.7	47.5

* Minimum length, 60 inches. † Maximum diameter, 24 inches.

Screw Machine Stock: 5000 lb and over.

Diam. (in.) or distance across flats	—Round— R317-T4, 17S-T4	——Hexagonal—— R317-T4	17S-T4
0.125	48.5	....	....
0.156-0.203	41.5	....	....
0.219-0.313	38.5	....	....
0.344	37.5	....	47.5
0.375	37.0	46.0	44.5
0.406	37.0	....	....
0.438	37.0	46.0	44.5
0.469	37.0	....	....
0.500	37.0	46.0	44.5
0.531	37.0	....	....
0.563	37.0	....	42.0
0.594	37.0	....	....
0.625	37.0	43.5	42.0
0.656	37.0	....	....
0.688	37.0	....	42.0
0.750-1.000	36.0	41.0	39.5
1.063	36.0	....	38.0
1.125-1.500	35.0	39.5	38.0
1.563	35.0	....	37.0
1.625	34.0	....	37.0
1.688-2.000	34.0	....	....
2.125-2.500	33.0	....	....
2.625-3.375	32.0	....	....

LEAD

(Prices to jobbers, f.o.b. Buffalo, Cleveland, Pittsburgh) Sheets: Full rolls, 140 sq ft or more, $16.00 per cwt; add 50c cwt, 10 sq ft to 140 sq ft. Pipe: Full coils, $16.00 per cwt. Traps and bends: List prices plus 40%.

ZINC

Sheets, 20.75c, f.o.b. mill, 36,000 lb and over. Ribbon zinc in coils, 20.00c, f.o.b. mill, 36,000 lb and over. Plates, not over 12-in., 19.00c; over 12-in., 20.00c.

"A" NICKEL

(Base prices f.o.b. mill)

Sheets, cold-rolled, 69.00c. Strip, cold-rolled, 75.00c. Rods and shapes, 65.00c. Plates, 67.00c. Seamless tubes, 98.00c.

MONEL

(Base prices, f.o.b. mill)

Sheets, cold-rolled 53.00c. Strip, cold-rolled, 56.00c. Rods and shapes, 51.00c. Plates, 52.00c. Seamless tubes, 86.00c. Shot and blocks, 46.00c.

MAGNESIUM

Extruded Rounds, 12 in. long, 1.31 in. in diameter, less than 25 lb. 55.00-57.50c; 25 to 99 lb. 45.00-47.50c; 100 lb to 5000 lb, 37.50-38.00c.

Plating Materials

Chromic Acid: 99.9% flake, f.o.b. Philadelphia, carloads, 25.50c; 5 tons and over 26.00c; 1 to 5 tons, 26.50c; less than 1 ton 27.00c.

Copper Anodes: Base 2000 to 5000 lb; f.o.b. shipping point, freight allowed; Flat untrimmed 34.09c; oval 33.59c; cast 32.12c.

Copper Cyanide: 70-71% Cu, 100-lb drums, 1000 lb 51.40c, under 1000 lb 49.40c, f.o.b. Niagara Falls, N. Y.

Sodium Cyanide: 96-98%, ½-oz ball, in 200 lb drums, 1 to 900 lb, 18.00c; 1000 to 19,000 lb, 17.00c, f.o.b. Niagara Falls, N. Y. Packaged in 100 lb drums add ½-cent.

Copper Carbonate: 54-56% metallic Cu; 50 lb bags, up to 200 lb, 28.00c; over 200 lb, 27.00c, f.o.b. Cleveland.

Nickel Anodes: Rolled oval, carbonized, carloads, 65.00c; 10,000 to 30,000 lb, 63.00c; 3000 to 10,000 lb, 67.00c; 500 to 3000 lb, 68.00c; 100 to 500 lb, 70.00c; under 100 lb, 73.00c; f.o.b. Cleveland.

Nickel Chloride: 100-lb kegs, 29.50c; 400-lb bbl. 27.50c up to 10,000 lb, 27.00c over 10,000 lb, f.o.b. Cleveland, freight allowed on barrels, or 4 or more kegs.

Tin Anodes: Bar, 1000 lb and over 93.00c, 500 to 999 lb, 93.5c; 200 to 499 lb, 94.00c; less than 200 lb, 95.5c, ball, 1000 lb and over, 95.25c; 500 to 999 lb, 95.75c; 200 to 499 lb 96.25c; less than 200 lb, 97.75c, f.o.b. Sewaren, N. J.

Sodium Stannate: 25 lb cans only, less than 100 lb, to consumers 59.2c; 100 or 300 lb drums only, 100 to 500 lb, 50.9c; 600 to 1900 lb, 48.5c; 2000 to 9900 lb, 46.8c, f.o.b. Sewaren, N. J. Freight not exceeding St. Louis rate allowed.

Zinc Cyanide: 100 lb drums, less than 10 drums 44.6c, 10 or more drums 42.6c, f.o.b. Niagara Falls, N. Y.; 45.85c and 43.85c, respectively, del. Cleveland or Philadelphia.

Stannous Sulphate: 100 lb kegs or 400 lb bbl, less than 2000 lb nom.; more than 2000 lb, nom., f.o.b. Carteret, N. J.

Stannous Chloride (Anhydrous): In 400 lb bbl, nom.; 100 lb kegs nom., f.o.b. Carteret, N. J.

Scrap Metals

BRASS MILL ALLOWANCES

Prices in cents per pound for less than 15,000 lb, f.o.b. shipping point.

	Heavy Clean	Ends Rod	Turnings Clean
Copper	19.50	19.50	18.75
Yellow Brass	16.75	16.50	15.50
Commercial Bronze			
95%	18.50	18.25	17.75
90%	18.375	18.125	17.625
Red brass			
85%	18.125	17.875	17.375
80%	17.875	17.625	17.125
Best Quality(71-80%)	17.50	17.25	....
Muntz metal	15.75	15.50	15.00
Nickel, silver, 10%	19.12½	18.87½	9.56¼
Phos. bronze, A	19.75	19.50	18.50
Naval brass	16.12½	15.87½	15.37½
Manganese bronze	16.12½	15.87½	15.25

BRASS INGOT MAKERS' BUYING PRICES

(Cents per pound, delivered eastern refineries, carload lots)

No. 1 copper 19.50; No. 2 copper 18.50; light copper 17.50; composition red brass 16.00; radiators 13.00; heavy yellow brass 12.00.

REFINERS' BUYING PRICES

(Cents per pound, delivered refinery, carload lots)

No. 1 copper 19.50; No.2 copper 18.50; light copper 17.50; refinery brass (60% copper) per dry copper content 17.75.

DEALERS' BUYING PRICES

(Cents per pound, New York, in ton lots)

Copper and brass: Heavy copper and wire, No. 1 17.75-18.00; No. 2 16.50-16.75; light copper 15.50-15.75; No. 1 composition red brass 14.25-14.50; No. 1 composition turnings 13.75-14.00; mixed brass turnings 8.75-9.00; new brass clippings 15.00-15.25; No. 1 brass rod turnings 13.25-13.50; light brass 8.75-9.00; heavy yellow brass 10.00-10.25; new brass rod ends 13.50-13.75; auto radiators, unsweated 11.00-11.25; cocks and faucets, 12.75-13.00; brass pipe 13.00-13.25.

Lead: Heavy 8.50-8.75; battery plates 4.25-4.50; linotype and stereotype 10.50-10.75; electrotype 8.75-9.00; mixed babbitt 8.75-9.00.

Zinc: Old zinc 8.00-8.25; new die cast scrap 8.25-8.50; old die cast scrap 5.50-5.75.

Tin: No. 1 pewter 39.00-41.00; block tin pipe 60.00-62.00; No. 1 babbitt 30.00-32.00.

Aluminum: Clippings 2S 11.50-12.00; old sheets 8.50-9.00; crankcase 8.50-9.00; borings and turnings 5.50.

DAILY PRICE RECORD

1950	Copper	Lead	Zinc	Tin	Aluminum	Antimony	Nickel	Silver
July 6	22.50	10.80	15.00	80.125	17.50	24.50	48.00	72.75
July 5	22.50	10.80	15.00	79.75	17.50	24.50	48.00	72.75
July 3	22.50	10.80	15.00	79.25	17.50	24.50	48.00	72.75
July 1	22.50	10.80	15.00	78.75	17.50	24.50	48.00	72.75
June Avg.	22.231	11.608	14.769	77.668	17.50	24.50	48.00	72.75
June 30	22.50	10.80	15.00	78.75	17.50	24.50	48.00	72.75
June 28-29	22.50	10.80	15.00	78.25	17.50	24.50	48.00	72.75
June 27	22.50	11.30	15.00	78.25	17.50	24.50	48.00	72.75
June 26	22.50	11.30	15.00	77.50	17.50	24.50	48.00	72.75
June 23-24	22.50	11.30	15.00	76.375	17.50	24.50	48.00	72.75
June 22	22.50	11.80	15.00	76.50	17.50	24.50	48.00	72.75
June 21	22.50	11.80	15.00	76.875	17.50	24.50	48.00	72.75
June 20	22.50	11.80	15.00	76.75	17.50	24.50	48.00	72.75
June 19	22.50	11.80	15.00	77.00	17.50	24.50	48.00	72.75
June 15-17	22.50	11.80	15.00	77.25	17.50	24.50	48.00	72.75

NOTE: Copper: Electrolytic, del. Conn. Valley; Lead, common grade, del. St. Louis; Zinc, prime western, E. St. Louis; Tin, Straits, del. New York; Aluminum primary ingots, 99%, del.; Antimony, bulk, f.o.b. Laredo, Tex.; Nickel, electrolytic cathodes, 99.9%, base sizes at refinery unpacked; Silver, open market, New York. Prices, cents per pound; except silver, cents per ounce.

IRON AND STEEL SCRAP

Consumer prices, except as otherwise noted, including brokers' commissions, as reported to STEEL, July 6, 1950; gross tons except as noted. Changes shown in italics.

STEELMAKING SCRAP COMPOSITE

July 6	$36.83
June 29	37.50
June 1950	39.25
July 1949	19.21
July 1945	19.17

Based on No. 1 heavy melting grade at Pittsburgh, Chicago and eastern Pennsylvania.

PITTSBURGH

No. 1 Heavy Melt.	*$40.00*
No. 2 Heavy Melt.	*35.00*
No. 1 Busheling	*40.00*
No. 1 Bundles	*40.00*
No. 2 Bundles	*32.00-33.00*
Heavy Turnings	36.00-37.00
Machine Shop Turnings	30.00-31.00†
Mixed Borings, Turnings	30.00-31.00†
Short Shovel Turnings.	33.50-34.50
Cast Iron Borings	*31.00-32.00*
Low Phos. Steel	*43.00-44.00*

Cast Iron Grades

No. 1 Cupola Cast	37.00-38.00
No. 1 Machinery Cast	*43.00-43.50*
Charging Box Cast	*41.00-41.50*
Heavy Breakable Cast	*36.50-37.50*

Railroad Scrap*

No. 1 R.R. Heavy Melt.	*42.00*
Rails, Random Lengths	*40.00-41.00*
Rails, 2 ft. and under	*41.50-42.00*
Rails, 18 in. and under	*42.50-43.50*
Railroad Specialties	*45.00-46.00*
Axles	*40.00-41.00*
Angles, Splice Bars	*41.00-42.00*

* Brokers' offering prices.
† Crushers' buying prices.

CLEVELAND

No. 1 Heavy Melt. Steel	$39.50*
No. 2 Heavy Melt. Steel	34.50*
No. 1 Busheling	39.50*
No. 1 Bundles	39.50*
No. 2 Bundles	30.50*
Machine Shop Turnings	26.00-27.00
Mixed Borings, Turnings	28.50-29.50
Short Shovel Turnings.	28.50-29.50
Cast Iron Borings	28.50-29.50
Low Phos.	41.50-42.00

Cast Iron Grades

No. 1 Cupola	46.00-47.00
Charging Box Cast	42.00-43.00
Stove Plate	41.00-42.00
Heavy Breakable Cast.	39.00-40.00
Unstripped Motor Blocks	32.00-34.00
Brake Shoes	34.00-35.00
Clean Auto Cast	46.00-47.00
No. 1 Wheels	42.00-43.00
Burnt Cast	36.00-37.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	46.00*
R.R. Malleable	49.00-50.00
Rails, 3 ft and under.	49.00-50.00
Rails, 18 in. and under	50.00-51.00
Rails, Random Lengths	48.00-49.00
Cast Steel	41.50-42.00
Railroad Specialties	42.50-43.00
Uncut Tires	49.00-50.00
Angles, Splice Bars	50.00-50.50

* Nominal.

VALLEY

No. 1 Heavy Melt. Steel	$41.50*
No. 2 Heavy Melt. Steel	36.50*
No. 1 Bundles	41.50*
No. 2 Bundles	32.50*
Machine Shop Turnings	28.00-28.50
Short Shovel Turnings.	30.50-31.00
Cast Iron Borings	30.50-31.00
Low Phos.	43.50-44.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	46.00*

* Nominal.

PHILADELPHIA

No. 1 Heavy Melt. Steel	*$33.00*
No. 2 Heavy Melt. Steel	*31.00*
No. 1 Busheling	*32.00*
No. 1 Bundles	*33.00*
No. 2 Bundles	27.00-27.50
Machine Shop Turnings	*23.00-24.00*
Short Shovel Turnings.	25.00-26.00
Mixed Borings, Turnings	22.00-23.00
Low Phos. Punchings and Plate, elec. fur. grade	*38.00**
Low Phos. Plate, 5 ft & Under	*38.00**
Elec. Furnace Bundles	*34.00**
Heavy Turnings	*33.00**
No. 1 Chemical Borings	34.00
Knuckles and couplers	*40.00**
Steel car wheels	*40.00**

Cast Iron Grades

No. 1 Cupola Cast	36.00
No. 1 Machinery Cast.	39.00-40.00
No. 1 Yard Cast	34.00-35.00
Charging Box Cast	35.50-36.50
Heavy Breakable Cast.	35.50-36.50
Unstripped Motor Blocks	29.00
Clean Auto Cast	39.00-40.00
No. 1 Wheels	41.00-42.00
Malleable	45.00-46.00

*Nominal.

CINCINNATI

No. 1 Heavy Melt. Steel	$37.00
No. 2 Heavy Melt. Steel	31.00
No. 1 Busheling	37.00
No. 1 Bundles	37.00
No. 2 Black Bundles.	30.00
No. 3 Bundles	26.00
Machine Shop Turnings	21.00
Short Shovel Turnings	24.00
Mixed Borings, Turnings	23.00
Cast Iron Borings	24.00

Cast Iron Grades

No. 1 Cupola Cast	47.00
Charging Box Cast.	36.00
Stove Plate	33.00
Heavy Breakable Cast.	36.00
Unstripped Motor Blocks	29.00
Brake Shoes	26.00
Clean Auto Cast	47.00
Drop Broken Cast	49.00
Low Phos., 18 in. and under	47.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	40.00
R.R. Malleable	44.00
Rails, Rerolling	44.00
Rails, Random Lengths	41.00
Rails, 18 in. and under	50.00

DETROIT

(Brokers' buying prices, f.o.b. shipping point)

No. 2 Heavy Melt. Steel	$27.00-28.00
No. 1 Bundles	39.00-40.00
No. 2 Bundles	25.50-26.00
No. 1 Busheling	37.50-38.00
Machine Shop Turnings	22.50-23.00
Forge Flashings	36.50-37.00
Short Shovel Turnings	24.50-25.00
Cast Iron Borings	24.50-25.00
Punchings & Plate Scrap	38.00-39.00

Cast Iron Grades

No. 1 Cupola Cast	39.00-40.00
Heavy Breakable Cast	34.00-35.00
Clean Auto Cast	43.00-44.00

BUFFALO

No. 1 Heavy Melt. Steel	$38.50-39.50
No. 2 Heavy Melt Steel	35.50-36.00
No. 1 Busheling	35.50-36.00
No. 1 Bundles	36.50-37.00
No. 2 Bundles	33.50-34.00
Machine Shop Turnings	29.50-30.00
Mixed Borings, Turnings	29.50-30.00
Cast Iron Borings	29.50-30.00
Short Shovelings	31.50-32.00
Low Phos.	41.50-42.00

Cast Iron Grades

No. 1 Cupola	35.50-36.00
No. 1 Machinery	38.50-39.00
Malleable	32.50-33.00

Railroad Scrap

Rails, 2 ft. and under.	46.50-47.00
Rails, random size	40.50-41.00

NEW YORK

(Brokers' buying prices f.o.b. shipping point)

No. 1 Heavy Melt. Steel	*$29.00-30.00*
No. 2 Heavy Melt. Steel	26.00-27.00
No. 1 Busheling	*27.00-28.00*
No. 1 Bundles	*29.00-30.00*
No. 2 Bundles	*25.00-26.00*
Machine Shop Turnings	*17.00-18.00*
Mixed Borings, Turnings	*17.00-18.00*
Short Shovel Turnings.	20.00-20.50
Punchings & Plate Scrap	30.00-31.00
Low Phos. Plate, 5 ft & under	30.00-31.00
Elec. Furnace Bundles.	30.00-31.00

Cast Iron Grades

No. 1 Cupola Cast	29.00-29.50
No. 1 Machinery	30.00-31.00
Charging Box Cast	28.50-29.50
Heavy Breakable	28.50-29.50
Unstripped Motor Blocks	21.00-22.00

BOSTON

(F.o.b. shipping point)

No. 1 Heavy Melt. Steel	$28.50-29.00
No. 2 Heavy Melt. Steel	23.50-24.50
No. 1 Bundles	28.50-29.50
No. 1 Busheling	28.00-28.50
Machine Shop Turnings	19.00
Mixed Borings, Turnings	17.50-18.00
Short Shovel Turnings.	22.00-23.00
Bar Crops and Plate.	30.50-31.50
Punchings & Plate Scrap	30.50-31.50
Chemical Borings	21.00-21.50

Cast Iron Grades

No. 1 Cupola Cast	30.00-31.00
Mixed Cast	28.00-29.00
Heavy Breakable Cast.	31.00-32.00
Stove Plate	26.50-27.00

CHICAGO

No. 1 Heavy Melt. Steel	$37.00-38.00
No. 2 Heavy Melt. Steel	35.00-36.00
No. 1 Bundles	*36.00-37.00**
No. 2 Bundles	*32.00-33.00**
Machine Shop Turnings	23.50-24.50
Mixed Borings, Turnings	23.50-24.50
Short Shovel Turnings	24.00-25.00
Cast Iron Borings	*27.00-28.00*
Low Phos.	39.00-40.00
Elec. Furnace Bundles	37.00-38.00
Heavy Turnings	29.00-30.00
Cut Structurals	38.00-39.00

Cast Iron Grades

No. 1 Cupola Cast	44.00-45.00
Clean Auto Cast	44.00-45.00
No. 1 Wheels	38.00-39.00
Stove Plate	37.00-38.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	*39.75-40.75*
Malleable	44.00-45.00
Rails, Rerolling	47.00-48.00
Rails, Random Lengths	41.00-42.00
Rails, 2 ft and under.	45.00-46.00
Rails, 18 in. and under	46.00-47.00
Railroad Specialties	41.00-42.00
Angles, Splice Bars	43.50-44.50

* Nominal.

BIRMINGHAM

No. 1 Heavy Melt. Steel	$31.00-32.00
No. 2 Heavy Melt. Steel	29.00-30.00
No. 1 Busheling	29.00-30.00
No. 2 Bundles	27.00-28.00
Machine Shop Turnings	25.00-26.00
Mixed Borings, Turnings	26.00
Short Shovel Turnings.	27.00-28.00
Cast Iron Borings	24.00-25.00
Bar Crops and Plate.	37.00-38.00
Cut Structurals	36.00-37.00

Cast Iron Grades

No. 1 Cupola Cast	38.00-39.00
Stove Plate	33.00-34.00
No. 1 Wheels	33.00-34.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	35.00
R.R. Malleable	nominal
Rails, Rerolling	44.00-45.00
Rails, 2 ft and under.	nominal
Angles and Splice Bars	40.00-41.00

ST. LOUIS

No. 1 Heavy Melt. Steel	$36.00-38.00
No. 2 Heavy Melt. Steel	*32.00-33.00*
No. 1 Bundles	36.00-38.00
No. 2 Bundles	*32.00-33.00*
No. 3 Bundles	*27.00-29.00*
Machine Shop Turnings	*19.00-20.00*
Short Shovel Turnings	*23.00-24.00*

Cast Iron Grades

No. 1 Cupola Cast	39.00-41.00
Charging Box Cast	36.00-38.00
Heavy Breakable Cast	*35.00-36.00*
Brake Shoes	*37.00-38.00*
Clean Auto Cast	40.00-42.00
Burnt Cast	35.00-36.00

Railroad Scrap

R.R. Malleable	*41.00-42.00*
Rails, Rerolling	*48.00-50.00*
Rails, Random Lengths	*39.00-41.00*
Rails, 3 ft and under	*45.00-46.00*
Uncut Tires	*38.00-39.00*
Angles, Splice Bars	*43.00-44.00*
Railroad Specialties	*41.00-42.00*

SAN FRANCISCO

No. 1 Heavy Melt. Steel	$22.00
No. 2 Heavy Melt. Steel	20.00
No. 1 Bundles	18.00
No. 2 Bundles	17.00
No. 3 Bundles	15.00
Machine Shop Turnings	9.00

Cast Iron Grades

No. 1 Cupola Cast	34.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	22.00
Rails, Random Lengths	22.00

SEATTLE

No. 1 Heavy Melt. Steel	$20.00
No. 2 Heavy Melt. Steel	20.00
No. 1 Busheling	17.50
Nos. 1 & 2 Bundles	18.00
No. 3 Bundles	16.00
Machine Shop Turnings	13.00
Mixed Borings, Turnings	13.00
Punchings & Plate Scrap	27.50-30.00
Cut Structurals	27.50-30.00

Cast Iron Grades

No. 1 Cupola Cast	*27.50-30.00*
Heavy Breakable Cast.	27.50
Stove Plate	25.00
Unstripped Motor Blocks	25.00
Malleable	27.50
Brake Shoes	25.00
Clean Auto Cast	30.00
No. 1 Wheels	30.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	21.00
Railroad Malleable	27.50
Rails, Random Lengths	21.00
Angles and Splice Bars	21.00

LOS ANGELES

(F.o.b. car, Los Angeles)

No. 1 Heavy Melt. Steel	$22.00
No. 2 Heavy Melt. Steel	20.00
Nos. 1 & 2 Bundles	16.00
No. 3 Bundles	13.00
Machine Shop Turnings	*7.50*
Mixed Borings, Turnings	5.00
Punchings & Plate Scrap	30.50

Cast Iron Grades

No. 1 Cupola Cast	38.00-39.00

Railroad Scrap

No. 1 R.R. Heavy Melt.	22.00
Rails, Rerolling	33.00

HAMILTON, ONT.

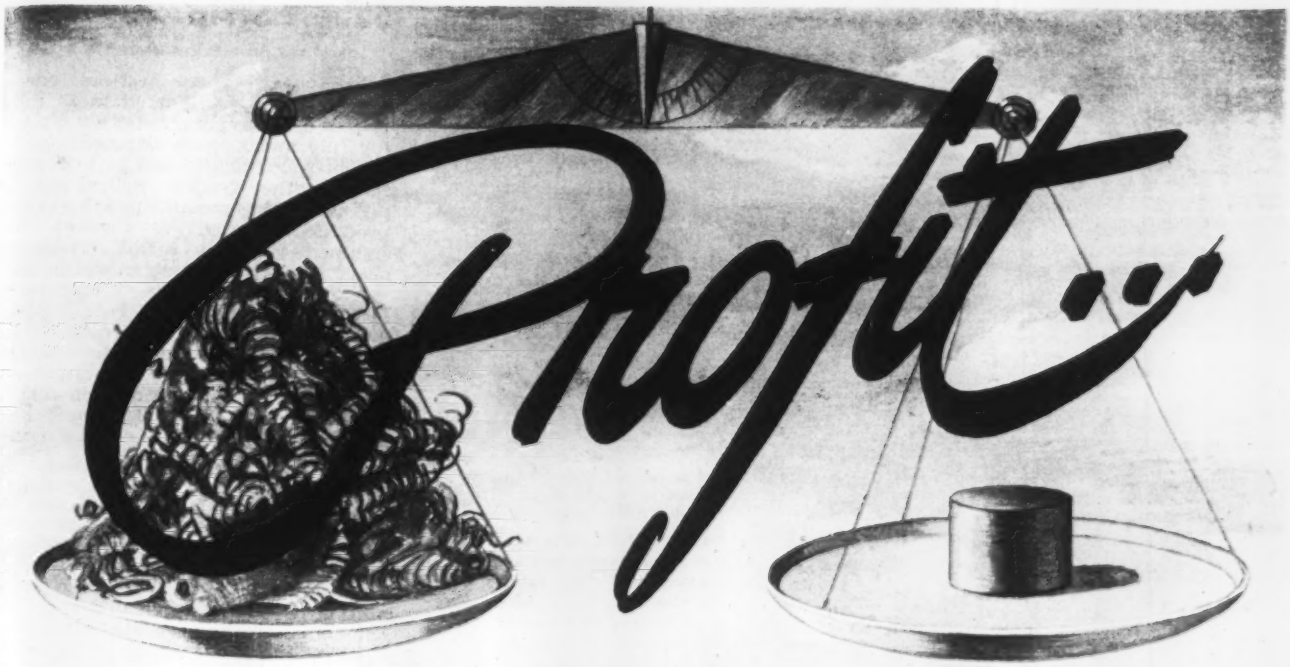
(Delivered prices)

Heavy Melt.	$30.00
No. 1 Bundles	30.00
Mechanical Bundles	28.00
Mixed Steel Scrap	28.00
Mixed Borings, Turnings	23.00
Rails, Remelting	30.00
Rails, Rerolling	33.00
Busheling	24.50
Bushelings new factory, prep'd	28.00
Bushelings new factory, unprep'd	23.00
Short Steel Turnings.	23.00

Cast Iron Grades

Cast	40.00-43.00*

* F.o.b. shipping point.



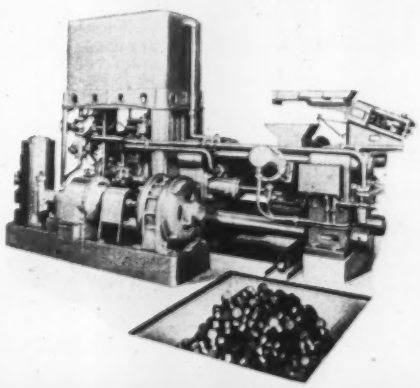
HANGS IN THE BALANCE!

Convert Bulky Scrap into Profitable Briquettes

Balance between ***profit*** and ***loss*** in the reclamation of scrap lies in a MILWAUKEE Hydraulic Briquetting Press. Cast iron, steel, brass, magnesium, bronze, and aluminum turnings, borings, and chips can be converted into compact, uniform, solid cylindrical blocks quickly and easily with little or no loss. These briquettes, identical in size and weight, reduce scrap handling and storage problems to a minimum. Classified as high-grade scrap, briquettes can be charged into furnace or cupola more readily and with greater economy than loose scrap.

Leading manufacturers of automobiles, heavy-duty mobile equipment, farm implements, aircraft, plumbing supplies, auto parts, pumps, and other high-production products currently are briquetting their scrap profitably. Many have increased self-sufficiency by reducing their dependence on outside scrap sources.

Of primary importance, also, is the fact that many of these plants have written off the *entire* cost of a MILWAUKEE Briquetting Press in one year or less. Write today for BULLETIN No. 117 to obtain complete specifications on available sizes of MILWAUKEE Briquetting Presses.



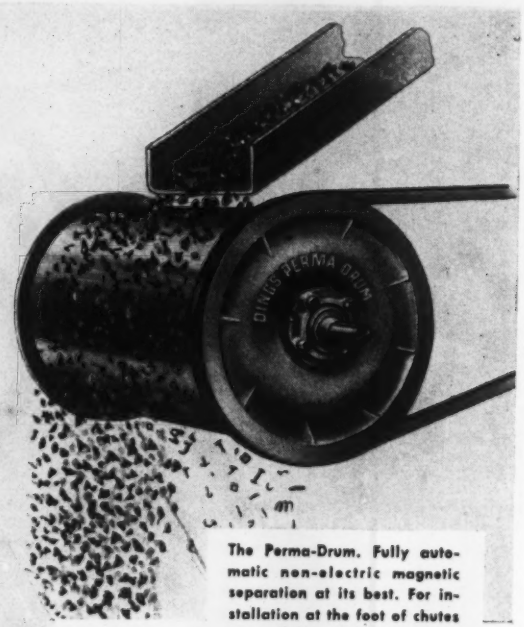
SPO

MILWAUKEE *Foundry Equipment Division*

CASTINGS ARE PERMANENT

6495 Grand Division Avenue • Cleveland 5, Ohio

DINGS
DINGS
DINGS



The Perma-Drum. Fully automatic non-electric magnetic separation at its best. For installation at the foot of chutes or available as fully enclosed, self-contained separators. Ask for Perma-Drum Catalog.

DING IT!

if you want it
IRON FREE

"DINGING" it has become synonymous with separating magnetic and non-magnetic substances throughout industry. You will find that Dinging it will be your most effective, lowest cost answer whether yours is a job of removing tramp iron from materials in process, for purifying or concentrating magnetic or non-magnetic substances.

- Dings is the world's largest exclusive builder of magnetic separating equipment, both electric and non-electric.
- Dings manufactures the most complete line of magnetic separators of all types in the industry.
- Dings equipment is backed by 51 years' pioneering experience in the development and application of magnetic separators.
- Dings' field organization consists of old-timers in the business with a valuable fund of experience for you.
- Dings maintains a magnetic analysis laboratory for study of your magnetic separation problems.

These are important points to consider before you buy a magnetic separator. WRITE FOR GENERAL CATALOG C-5000-A. No obligation.

DINGS MAGNETIC SEPARATOR COMPANY
4710 W. Electric Ave.
MILWAUKEE 46, WISCONSIN

50 years the Leader

Dings MAGNETIC SEPARATION HIGH INTENSITY Reg. U.S. Pat. Off.

YOU WON'T SAY "Dang it" If you "DING IT!"

Sheets Strip . . .

Sheet and Strip Prices, Page 115 & 116

Pittsburgh—Large first-half carryover tonnage has forced most mills to reduce customers' order acceptance for July and August shipments by ⅓ on hot-rolled sheets and to lesser extent on other grades. Sellers are doing everything possible to achieve full production schedules through the summer vacation period. Loss in sheet and strip output from this factor is expected to be considerably less than on wire, pipe, bars, shapes, etc. Shortage of flat-rolled steel items is expected to continue through most of this year. Many metalworking concerns insist production schedules are below potential levels due to inadequate mill allotments causing unbalanced and inadequate overall inventories.

Carnegie-Illinois Steel Corp. has issued a new extra card on silicon steel. The card includes extras on all grades and sizes of silicon steel produced, thus giving potential customer information on extras applicable throughout complete range of size classifications. The new card includes reference to Transformer 73 grade not previously listed; extras have been added for the lighter gages down to 0.007 in. in the gage, width and length extras tables; similar changes have been made on core plate extras. A new extra of 15 cents per 100 lb has been added for testing and reporting permeability. Card also includes a new column in packaging extras for coils, 12-in. wide and under, "single paper wrapped without platform" which coincides with extras charged for similar wrapping on coils over 12-in. wide.

Boston—Where books are open for fourth quarter, rush of orders for flat rolled well into that period is heavy. Some allocations by mills on electrical sheets and strip are 10 per cent lower due to expected carryovers. Vacations are slowing up actual consumption of sheets, but pressure for delivery is strong. Buying of narrow cold-rolled strip extends into the fourth quarter and carryovers into the current quarter are substantial. This limits the volume of new business booked in both sheets and strip. More producers, hoping to reduce arrearages by start of the fourth quarter, also are holding down new bookings.

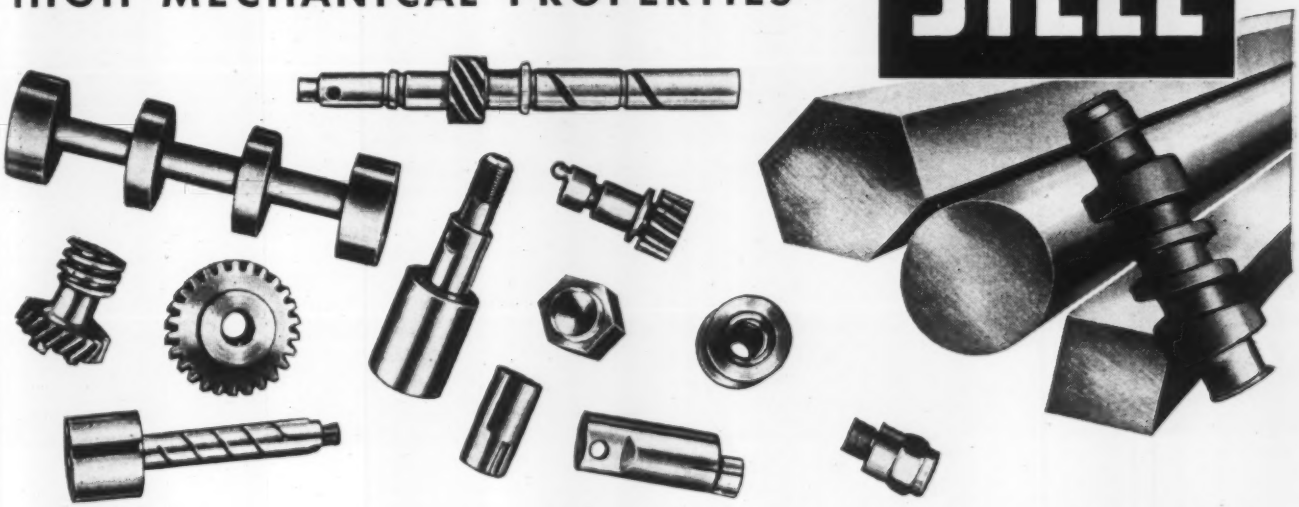
Philadelphia—Sheet producers are holding back on fourth quarter allotments, with desks piled high with requests for tonnage. Temporarily, consumption is off due to vacation suspensions at various metalworking plants. Sheet mill at Conshohocken, Pa., was down last week for vacations, but the strip department kept going, working through the July 4 holiday. Six thousand striking workers at the Lester, Pa., plant of Westinghouse Electric Corp. last week agreed to fill urgent Navy orders. The walkout had closed down the plant's steam and aviation turbine divisions.

Chicago—War talk intensified pressure on sheet sellers here. Most consumers, however, realize that the mills cannot turn out more steel than is presently being produced. Some finished mills were down for the

JALCASE 10

J&L STEEL

- - - - - - the top grade of J&L cold finished JALCASE - - - - **WITH HIGH MECHANICAL PROPERTIES**



. . . and all the high machinability properties of other Jalcase grades

When the shop bull-sessions get started on "better than average" steels, and the boys get down to fine points, you can be sure that Jalcase 10 (AISI No. C-1144) will come up for discussion. That's because Jalcase 10 is the grade of cold-finished Jalcase steel made for those tough and "in between" applications.

Many times finished part specifications call for a high degree of hardness—but not as high a degree as that obtained through heat treating of the finished part. In these applications, manufacturers and machinists have found it profitable to use Jalcase 10 and dispense with heat-treating processes altogether.

Machinists who know their stuff also know that Jalcase 10—the highest carbon grade of Jalcase—has high mechanical properties. They know that Jalcase is the original cold-finished, open-hearth, free-machining steel. They know that Jalcase 10 has over 25 years of research and experience behind every ton produced.

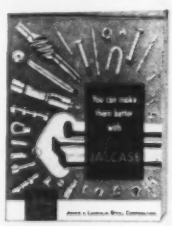
Interested in some technical data? Here are the chemical properties and mechanical properties of Jalcase 10:

CHEMICAL

Carbon Range	.40-.48
Manganese Range	1.35-1.65
Maximum Phosphorus	.045
Sulphur Range	.24

TYPICAL PHYSICAL PROPERTIES

Tensile Strength	134,050 lb./sq. in.
Yield Strength	107,840 lb./sq. in.
Elongation in 2 inches	13.5%
Reduction of Area	35.7%
Brinell Hardness	269



If you haven't tried Jalcase 10 yet (many shops have, and like it, too), why not send for our booklet entitled "You Can Make Them Better with Cold-Finished Jalcase." This 16-page illustrated booklet gives you technical information, charts and graphs about Jalcase 10 (and the other nine grades of Jalcase, too) that will help you make better parts.

Write Today!

Jones & Laughlin Steel Corporation
404 Jones & Laughlin Building
Pittsburgh 30, Pennsylvania

☐ Please send me a copy of "You Can Make Them Better with Cold Finished Jalcase."

☐ I am interested in making a trial run on J&L Jalcase 10. Please have a representative call.

Name_____

Title_____

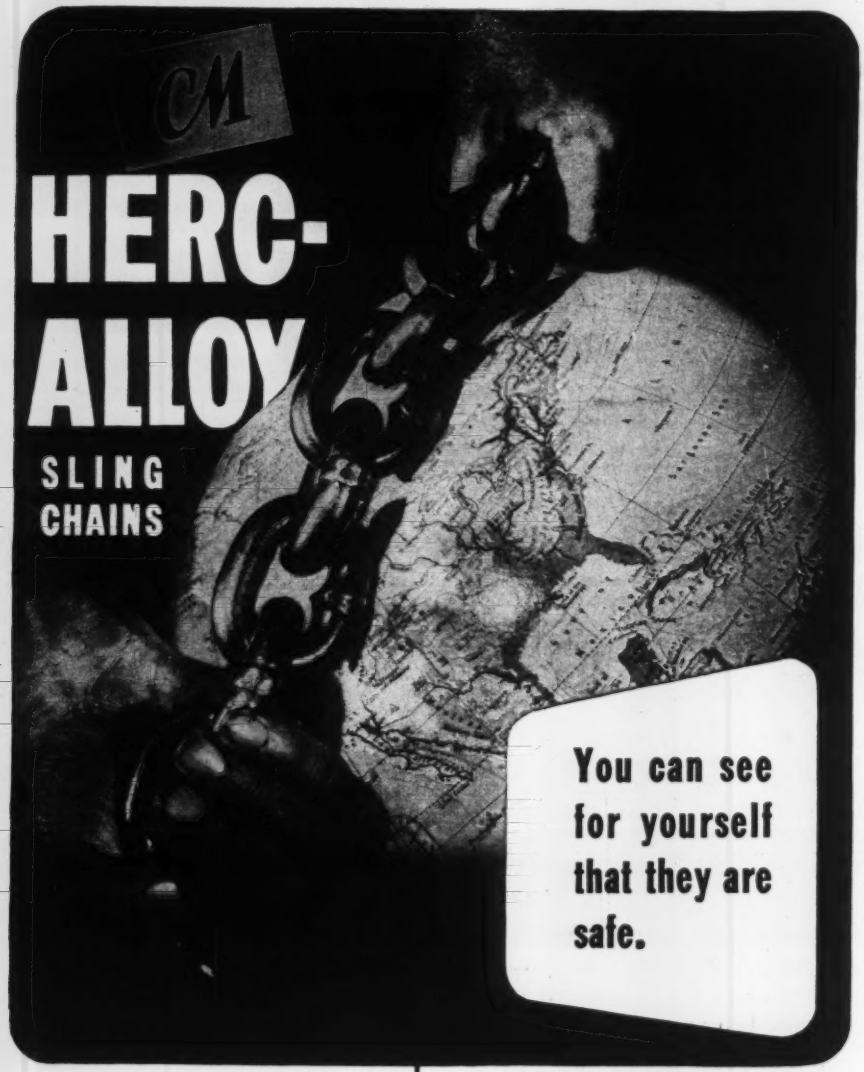
Company_____

Address_____

JONES & LAUGHLIN STEEL CORPORATION

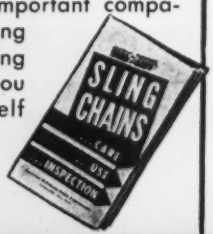
From its own raw materials, J&L manufactures a full line of carbon steel products, as well as certain products in OTISCOLOY *and* JALLOY *(hi-tensile steels).*

PRINCIPAL PRODUCTS: HOT ROLLED AND COLD FINISHED BARS AND SHAPES • STRUCTURAL SHAPES • HOT AND COLD ROLLED STRIP AND SHEETS • TUBULAR, WIRE AND TIN MILL PRODUCTS • "PRECISIONBILT" WIRE ROPE • COAL CHEMICALS



● Just one of the big advantages of HERC-ALLOY Sling Chains is that you can determine their serviceability by a simple visual inspection.* Ordinary steel or iron chains, on the contrary, grow dangerously brittle with age... an insidious threat to the safety of men and materials. That's why more and more of the important companies are standardizing on HERC-ALLOY Sling Chains... because you can **see** for yourself that they're safe.

Write for your copy of this new, informative booklet. No charge.



HERC-ALLOY FEATURES

- America's *first* alloy steel sling chain... first to bear a serial number.
- *Every* CM HERC-ALLOY Sling Chain is alloy steel throughout... links, rings, hooks. There is only one grade... *the best.*
- Every chain is individually tested and accompanied by a certificate of registration.
- Links are side welded for maximum strength by patented INSWELL electric method.
- HERC-ALLOY Chains should *never* be annealed.
- HERC-ALLOY Chains are lighter... stronger... easier to handle... outlast ordinary chains 4 to 5 times... cost less on the job.

HERC-ALLOY... the chain you can SEE is safe

COLUMBUS-McKINNON
CHAIN CORPORATION
Affiliated with Chisholm-Moore Hoist Corporation
GENERAL OFFICES AND FACTORIES: TONAWANDA, N. Y.
SALES OFFICES: New York • Chicago • Cleveland • San Francisco • Los Angeles

Fourth of July, but many operated around the clock. One which closed maintained a sheet rolling rate in excess of 170 per cent of theoretical capacity last week. Ingot production was not affected by the holiday. Mills have scheduled shipments on trucks or on railroads not affected by the switchmen's strike and few complaints are heard from consumers of disruptions caused by the strike.

Los Angeles—Pressure from important customers has caused some diversion of cold-rolled strip finishing facilities to conversion business. Deliveries of hot-rolled strip are more extended, moving from 45 to 75 days. Finishing mills are under constant pressure to accept new business, but are getting only half the tonnage of flat-rolled required to satisfy present customer needs.

San Francisco—Demand for sheets shows no signs of softening and fabricators are resigned to no prospect of increased supplies before the year-end.

Plates . . .

Plate Prices, Page 115

Boston — Sustained demand for small tanks and weldment shop products finds some plate fabricators operating on narrow inventory; they confined buying to backlog requirements too long and this situation is not likely to be remedied before late this quarter. Light plates are practically on an allocation basis by placement of limits on these sizes per order. With exception of heavier sizes, third quarter capacity is filled.

More producers of stainless clad plates have advanced prices on certain grades.

Armament orders are heavier, one for gun shields going to Tower Iron Works, Providence, R. I., $142,560, Watertown arsenal.

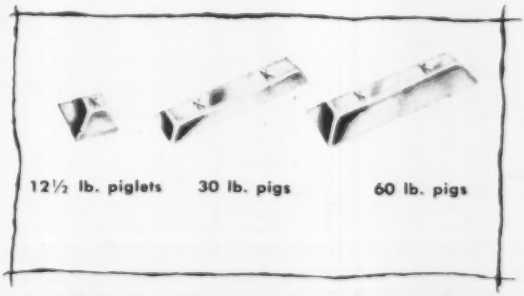
New York—No let-up is noted in demand for light gage plates. While requirements for light underground tanks have passed their seasonal peak, there is sufficient demand from other quarters to more than sustain total volume. However, as most mills have not opened their books for third quarter, much of this light gage tonnage is going begging at the moment. Demand for heavier gages is increasing. Most producers have little tonnage to offer before mid-September and some are sold out completely for the quarter. In view of the tense Korean situation, a pick-up in shipyard requirements may develop shortly, marked first with an acceleration in ship repairs.

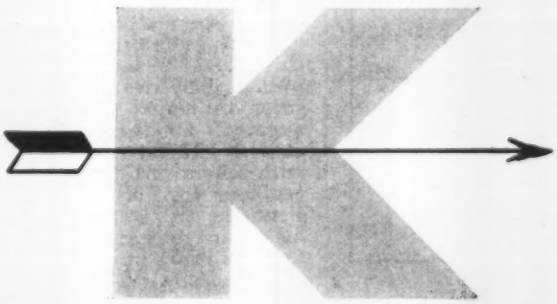
Philadelphia—Most plate producers are accepting orders for fourth quarter, but making no definite promises until they can better gage their position. One mill is expected to announce allocations within a week and schedules should be set up by others shortly. Some heavy gage plate is still available for late September. Shipyards are doing little, but a worsening in the international situation could change this picture rapidly.

Seattle—Demand for plates is slow, shops being engaged in small jobs for pipes and tanks. Considerable plate tonnage is involved in Reclamation of Bureau projects, includ-

"PIG FOR PIG"
SAYS: PRINCESS WENATCHEE
"CAR FOR CAR"
SAYS: CHIEF KEOKUK
"THE QUALITY AND UNIFORMITY OF KEOKUK ELECTRO-SILVERY NEVER VARIES"
SAYS: CHIEF KEOKUK JR.

Chief Keokuk Jr., although newly arrived, knows already that Keokuk pigs and piglets are consistently uniform in size, weight and metallurgical composition. All foundry and steel plant executives who use Keokuk Electro-Silvery will certainly agree that every shipment . . . every carload is *exactly* what they ordered. The "K" brand is *your* assurance of dependability!





KEOKUK

KEOKUK ELECTRO-METALS COMPANY

Keokuk, Iowa • *Wenatchee Division: Wenatchee, Washington*

SALES AGENTS: Miller and Company

332 S. Michigan Avenue., Chicago 4, Ill. • 3504 Carew Tower, Cincinnati 2, Ohio • 407 N. Eighth Street, St. Louis 1, Missouri.

ing 100 tons for the East Canal, Columbia Basin, bids in.

Wire . . .

Wire Prices, Page 117

Boston—Inventories held by most of the larger wire consumers are in better balance, but full allotments are being taken. Except for high-carbon specialties, schedules are held to the current quarter with low-carbon deliveries around eight weeks. Automotive demand is at a high level, with stronger demand noted for aircraft wire and cable.

Chicago—Merchant wire product inventories have dwindled and distributors are actively specifying fence, steel posts, and nails. Demand for the latter is particularly strong as the result of housing requirements. Fencing needs and demand for automatic baling wire are extremely heavy, with stocks low and unbalanced. Further tightening in fencing supply is anticipated in the fall. Welded paving mesh sales are well above 1949 due to road reconstruction work.

Wire drawers in this district have become steady and fairly heavy users of foreign rods. Foreign steel, particularly from Germany, France and Belgium, became attractive pricewise when integrated mills increased rod prices disproportionately with their wire prices. Since that time non-integrated mills have found foreign material priced at less than the domestic product and in fairly easy supply.

Steel Bars . . .

Bar Prices, Page 115

Boston—Strong demand for bars is bolstered by increased requirements for government shops, Springfield and Watertown; former is closing July 17 and 24 on close to 500 tons, including alloy barrel blanks, hot and cold-finished carbon. Wanted are 182,009 blanks, mostly chromium-molybdenum grade.

Pressure for hot-rolled bars by cold finishers reflects low and unbalanced inventories with cold-rolled carbon deliveries in September and beyond on smaller sizes.

Electric furnace alloys can be scheduled for late August and open hearth grades September. Stainless is the more active of the alloy group and freight is being absorbed on orders for that grade.

Inquiry for forgings for government work is heavier.

New York—Practically all hot carbon bar sellers entered the new quarter with arrearages of at least two or three weeks. Demand continues strong and those who have opened their books for the fourth quarter are booked solidly into November and beyond on the small sizes. Few, if any, have tonnage left for third quarter shipment, even including the heavy sizes of flats and rounds, which until fairly recently had been moving slowly. Hot alloy bars can still be had within five to six weeks.

Philadelphia — Stringency in hot carbon bars is increasing. Except on the larger rounds and flats, some producers are booked for the remainder of the year and on the larger into November. Some mills haven't opened books for fourth quarter, but they have enough orders to absorb most capacity for that period. The next week or 10 days will see schedules set up for fourth quarter by most of the larger mills.

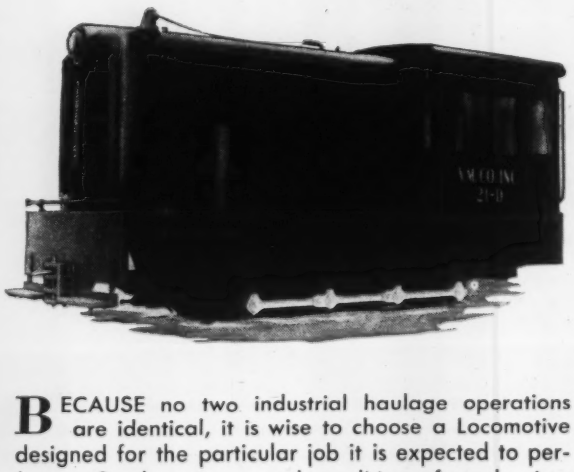
Despite pressure for bars and for steel in general, many metalworking plants now down for mass vacations have not arranged to take in shipments during suspensions. They do expect their full quotas, however, once they resume. International tension has not resulted in a pick-up in requirements, although it has sharpened consumer interest in tonnage for general commercial needs.

Pittsburgh—Vacation periods scheduled by many merchant carbon and alloy bar consumers this month and next, will have little or no effect in easing the heavy pressure for mill deliveries throughout the entire size range, notably in smaller classifications. Speculative buying on part of a growing number of customers is the chief factor in increased pressure for prompt deliveries. Mills are in no position to juggle rolling schedules to augment allotments in specific instances. In fact, the reverse is true with sellers cutting back on order acceptance for July and August shipments so as to make it possible to make up substantial carryover tonnage on books at start of second half.

Los Angeles—Avalanched with sudden orders, cold-drawers are booked

Where CUSTOM BUILDING is an ECONOMY

This 0-8-0, 27-Ton Davenport Diesel Mechanical Locomotive was equipped with eight drivers in order to spread the weight as a protection for light or weak track.



DAVENPORT LOCOMOTIVES

BECAUSE no two industrial haulage operations are identical, it is wise to choose a Locomotive designed for the particular job it is expected to perform. Grades, curves and condition of track; size, number and condition of cars; length and frequency of hauls—these and other factors should be considered in the selection of a power unit that will deliver the BEST RESULTS—Lowest Costs per Ton Mile.

We Analyze—FREE

It will be a pleasure to receive a description of your haulage conditions and work to be done. Our engineers will give you the benefit of a half century of Locomotive engineering and will recommend a power unit that will hold your ton-mile costs to a minimum.

Complete Information on Request

EXPORT OFFICE
50 Church St., New York 7, New York
Cable Address "BROSITES"

DAVENPORT
Better-Built
LOCOMOTIVES
are available in
STEAM
GASOLINE
DIESEL
with
ELECTRIC
or
MECHANICAL
DRIVE

DAVENPORT LOCOMOTIVE WORKS
A DIVISION OF DAVENPORT BESLER CORPORATION, DAVENPORT, IOWA

four months ahead on popular sizes and sold through second quarter of next year on specialty items. Supplies of hot-rolled bars are tightening. Some producers, previously current, are quoting deliveries ranging from 90 to 120 days.

Reinforcing Bars . . .

Reinforcing Bar Prices, Page 115

Seattle — Rolling mills, with fair backlogs, continue to book numerous small tonnages of reinforcing bars involved in public works and general construction. Demand for merchant bars is fair, output of reinforcing predominating.

Northwest Steel Rolling Mills Inc., this city, has closed its mill for a two-weeks vacation and repairs but furnaces continue to melt, adding to ingot stocks.

Structural Shapes . . .

Structural Shape Prices, Page 115

Philadelphia — While public work still dominates the structural market, the differential between it and private work is narrowing, the latter increasing and the former tapering. Buying for the Pennsylvania Turnpike is nearing an end and certain other state programs have passed their peak. However, overall volume is fairly well sustained. Improvement in private construction is proving particularly helpful to the small fabricators, as it includes no bridge work and is made up of a greater number of small projects. Shapes are still obtainable for September shipment, virtually the only major product that can be had for delivery this quarter.

Boston—Both plain material and fabricated structural steel deliveries are more extended. Openings for balance of this quarter are nil. Shop deliveries extend to October. Despite this sold-up situation, competition for more volume depresses prices for fabricated steel and there is no evidence pointing toward an upward trend soon.

Contractors are generally quoting 10.00c to 11.00c per pound in place for bridge work, including painting, but are buying fabricated structurals at prices showing good margin on steel work alone.

New placements include 500 tons for state bridges, Vermont.

Pittsburgh—Structural fabricators continue to operate well below capacity despite gradual improvement in inquiries and awards. At least one concern is unable to operate much above 50 per cent, while many others are operating between 60 and 75 per cent of capacity. This situation is reflected in keen competition for new work and consequent price cutting. Supply of standard structurals is ample to meet current needs. The reverse is true of wide flange beams, however, with mill deliveries closely restricting distribution on an allotment basis. Large first-half carryover tonnage and vacation shutdown of rolling mill facilities will accentuate this situation.

Los Angeles—Rising building costs have temporarily shelved some municipal jobs. The new $2,469,825 San Fernando High School project, higher by 10 per cent over estimates, is postponed.

The May Co. will erect a 4-story, 325,000 sq ft department store in Lakewood Center, near Los Angeles. Albert C. Martin & Associates are architects. Completion is scheduled for early 1952.

San Francisco—Buying of structural shapes continues to pick up slowly. Private construction is expanding, but public works remain the mainstay of volume.

Factory expansions in the 12-county San Francisco Bay area in May totaled $6,426,000 some 25 per cent above the previous 1950 high set in January.

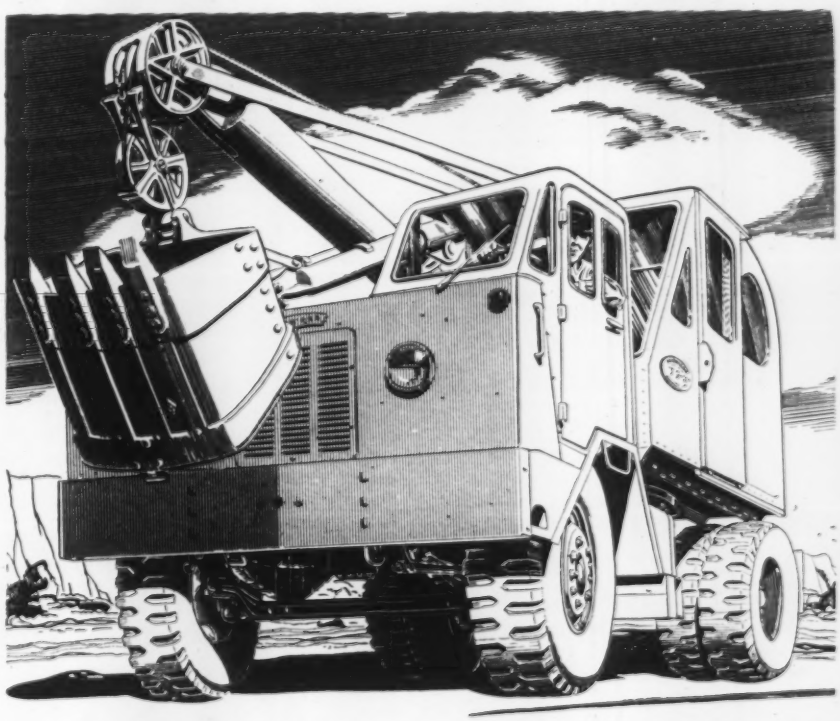
Seattle—Fabricators have 60-day backlogs, but are seeking new contracts for fall delivery. Current business consists of small tonnages, no large projects immediately pending.

Manufacturers of diesel engines report business slow, but activity in the lumber industry has resulted in a strong demand for track loaders and other logging equipment.

Tin Plate . . .

Tin Plate Prices, Page 116

Pittsburgh—Tin plate production was substantially reduced last week as result of shutdown of cold-reduction units and tinning lines over the holiday. Industry expects to operate fully throughout the summer



Any MICHIGAN owner will tell you

—why he bought a Michigan Truck Excavator. It could have been Michigan's famous mobility . . . the heavy duty Michigan truck chassis . . . high yardage through air controlled clutches . . . cast steel turntable base . . . hook rollers . . .

But why not let a Michigan owner tell you in his own words. Your local Michigan dealer welcomes the opportunity to show you the most complete line of ⅜ and ½ yard excavators available. It will pay you to get in touch with him *today*.

MICHIGAN
POWER SHOVEL COMPANY
392 Second Street
Benton Harbor, Michigan, U.S.A.

ACP

PHOSPHATE FINISHES TO MAKE YOUR PRODUCT *DURABLE*

PAINT BONDING

"Granodine" forms a zinc-iron phosphate-coating bond on sheet metal products — automobile bodies and fenders, refrigerator cabinets, etc. — for a durable, lustrous finish.

"Lithoform" makes paint stick to galvanized iron and other zinc and cadmium surfaces.

"Alodine", the new ACP protective coating chemical for aluminum, anchors the paint finish and protects the metal.

RUST PROOFING

"Permadine", a zinc phosphate coating chemical, forms on steel an oil-adsorptive coating which bonds rust-inhibiting oils such as "Granoleum."

"Thermoil-Granodine", a manganese-iron phosphate coating chemical, forms on steel a dense crystalline coating which, when oiled or painted, inhibits corrosion.

PROTECTION FOR FRICTION SURFACES

The oiled ***"Thermoil-Granodine"*** coating on pistons, piston rings, cranks, camshafts and other rubbing parts, allows safe break-in operation, eliminates metal-to-metal contact, maintains lubrication and reduces the danger of scuffing, scoring, galling, welding and tearing.

IMPROVED DRAWING AND EXTRUSION

"Granodraw" forms on pickled surfaces a tightly-bound adherent, zinc-iron phosphate coating which facilitates the cold mechanical deformation of steel, improves drawing, and lengthens die life.

Write or call for more information on these products. Send for new descriptive folder on ACP Metal-Protective and Paint-Bonding Chemicals.

American Chemical Paint Co.
AMBLER ACP PENNA.

months. Normal industry pattern of sidetracking tin plate specifications for general line cans is in evidence to meet seasonal peak needs for perishable food packs. It is expected that general line can requirements will sustain near capacity tinning operations through closing months this year. Export demand continues active.

Tubular Goods . . .

Tubular Goods Prices, Page 118

Los Angeles—Inability to get adequate supplies of skelp is causing pipe fabricators to lose orders. Delivery of skelp to waterpipe producers scheduled for October now looks doubtful. To ease shortages, fabricators are turning to importers who are quoting 60 day delivery on sheet and plate.

Seattle—Cast iron pipe market is slow, no important jobs being up for bids. Navy will furnish 250 tons for the Whidbey Island, Washington installation. A large tonnage involved at Fort Lewis, Wash., is reported to have been placed with another type of pipe. Mill deliveries have been extended from 60 days to 90 days due to vacations and heavy backlogs.

Tool Steel . . .

Tool Steel Prices, Page 117

Pittsburgh—Projected high level of metalworking operations through summer months should sustain present demand for and production levels of most grades of tool steel. Producers are fairly active in contrast to depressed conditions prevailing this time a year ago. Current production on 5 day per week basis, is closely geared to incoming order volume for little change is noted in producers' stocks.

Stainless Steel . . .

Stainless Steel Prices, Page 118

Pittsburgh — Allegheny Ludlum Steel Corp. followed other producers, effective July 5, in advancing all grades of stainless steels as follows: Semifinished products, up 1 cent; hot-rolled strip, up 1.25 cents; all other products, except plates and castings, up 1.50 cents per pound. This price action follows the pattern initiated by U. S. Steel Corp.'s subsidiaries and since adopted by Armco and Firth Sterling Steel & Carbide.

Eastern Stainless Steel Corp. has advanced stainless steel sheets 1.50 cents a pound on all types. The company also has increased gage extras 1 cent per pound on 100 grit finish.

Metallurgical Coke . . .

Metallurgical Coke Prices, Page 118

Pittsburgh — Connellsville beehive coke operators were able to "draw" their coke for a period of 2 days during the annual coal miners vacation period July 1 to 10, providing they had sufficient coal on hand to recharge the ovens. There were no mining operations during this period. Demand for furnace and foundry bee-

ONLY A BALL

has { one dimension / one surface

but oh—how important

Important not only in precision ball bearings, but also in the lot of other applications where Strom metal balls have been doing the job better. Strom has been in on a great many ball-application problems, and knows how important these two factors are for the best results.

Strom has been making precision metal balls for over 25 years for all industry and can be a big help to you in selecting the right ball for any of your requirements. In size and spherical accuracy, perfection of surface, uniformity, and dependable physical quality, there's not a better ball made.

Strom STEEL BALL CO.
1850 South 54th Avenue
Cicero 50, Illinois
Largest Independent and Exclusive Metal Ball Manufacturer

hive coke continues depressed. Most consumers are in fairly comfortable stock position. Preference persists for oven foundry coke with demand considerably greater than for beehive foundry grades.

Pig Iron . . .

Pig Iron Prices, Page 114

Boston—Output at Mystic furnace is geared to low foundry melt in New England territory. Unchanged base price, $50.50, Everett, for third quarter is based on costs for June-July, 1949; not since latter month has the furnace produced minimum tonnage in one month during any quarter on which to base costs or price under the partnership agreement with most district foundries. This minimum is at least 13,000 tons in any one or more months in the previous quarter. Excessive inventory would have closed this furnace long since had normal production been maintained. Until demand warrants heavier production, current low rate of output will continue.

New York—Some pick-up in foundry melt is anticipated now that the holiday week is over. However, schedules probably will be affected by vacation suspensions over the next several weeks. Some foundries are taking in iron despite cessation for vacations. Adverse seasonal effects may not be as pronounced this summer as some had expected, as demand for castings is increasing. Casting requirements are along general commercial lines, not reflecting as yet the tense international situation.

Buffalo—Extensive increases in pig iron buying is noted with merchant iron sellers reporting demand exceeds supplies. Inquiries from Canada are being turned down by one of the leading sellers in this area. Likewise, shipments by barge to the East Coast have been curtailed, but shipments to Michigan casters continue in heavy volume.

Philadelphia—With many foundries closed for vacations, pig iron consumption is the lightest in several months. Sellers anticipate that shipments for the month as a whole will lag noticeably but not as much as was assumed a few weeks ago because there is a steady increase in bookings by the foundries. Consumption of basic continues at a high rate, there being little slow-up at the mills.

Pittsburgh — Spotty improvement in new order volume continues to be noted among small jobbing shops. Many foundries were idle last week due to vacation shutdowns, some will remain closed this week. Pig iron shortage, due to relining of Pittsburgh Coke & Chemical Co.'s foundry iron stack, has prevented some jobbing shops from increasing output in line with slightly improved demand. Activity among captive foundries remains at near capacity and new order volume has recorded little change. These interests have resorted to substantially higher cast scrap charge to offset growing pig iron shortage.

National Tube Co. relighted its No. 2 stack at McKeesport Works, rated at 1000 tons daily, leaving only 4 out of 47 furnaces idle in the district.

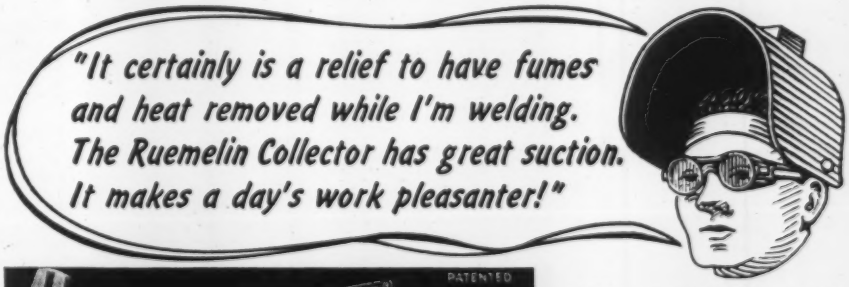
Cincinnati—Some foundries ex-

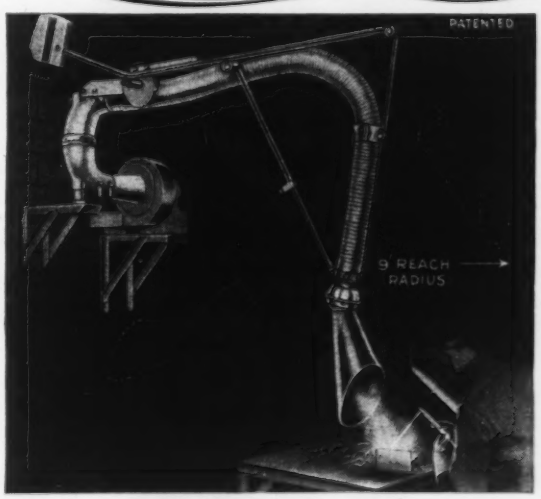
H. K. PORTER, INC.
NOW OFFERS THE
perfected and proven
COLD SOLDER METHOD
for fast, economical repair and filling of metal and other surfaces.

FIXX is fast, economical and easy to apply! It has hundreds of industrial uses such as: alterations and repairs to patterns; dressing up castings; sealing joints, cracks, gaskets, etc.; filling dents, scratches, countersinks, tool marks, etc.; building up fillets and blends; repairing leaks in static or low pressure tanks plus literally hundreds of other uses!

Applied like putty, FIXX hardens like metal and may be sanded, filed, ground, polished, etc. It is waterproof, non-shrinking, rustproof, flexible and durable; it takes paint or enamel beautifully. With FIXX-FAB (patch material for larger area) and FIXX-SOL (solvent), the amazing new FIXX technique can accomplish wonders for you. Ask your industrial supply house.

H. K. PORTER, INC.
SOMERVILLE 43, MASS.


"It certainly is a relief to have fumes and heat removed while I'm welding. The Ruemelin Collector has great suction. It makes a day's work pleasanter!"



Ruemelin Fume Collector in operation.

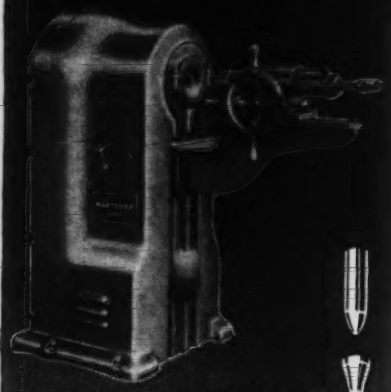
Welding shops equipped with Ruemelin Fume Collectors are assured of a clean shop atmosphere. Noxious fumes, heat and smoke are eliminated at their source, thus improving working conditions, lessening fatigue and paving the way for increased plant production.

The Ruemelin Fume Collector hood can be instantly placed where needed anywhere in the booth welding area. No tedious adjustments necessary. Just pull the inlet hood to the welding position and you are ready to go. Approved by state industrial commissions and by compensation insurance companies. Simple to install. Thousands in service. Many users send in repeat orders. Write for bulletin 37-D today.

RUEMELIN MFG. CO.
MANUFACTURERS AND ENGINEERS
SAND BLAST AND DUST COLLECTING EQUIPMENT
3882 NORTH PALMER STREET • MILWAUKEE 12, WISCONSIN, U. S. A.

A 5718-½

HARTFORD SPECIAL
SWAGERS
save time and material on turning operations



Round work can be formed, tapered, reduced ends on Hartford Special Swagers much faster than by turning, hollow milling or other methods. No material is removed during swaging; strength and hardness of material is increased; a finer, smoother finish is imparted.

Hartford Special Swagers feature hardened and ground liners in die slot of spindle for longer wear of operating parts. All swagers equipped with stop rods to assure even opening of die along entire length.

Take advantage of our 60 years of Swaging experience. Write for more information now.

HARTFORD Special

THE HARTFORD SPECIAL MACHINERY CO.
HARTFORD 5, CONNECTICUT

Send me complete information on your Swaging and Hammering Machines.

Name _____ Pos. _____
Firm _____
Street _____
City _____ Zone____ State_____
7

tended the Independence Day holiday into vacations of one or two weeks, causing holdups in iron deliveries. Overall demand will sustain tonnage this month close to June levels.

Chicago—Capacity blast furnace operations were achieved when Carnegie-Illinois blew in No. 3 stack at Gary recently. The company has 23 furnaces in the district and will operate all "for an indefinite period." Only two district stacks are idle, one of these being hamstrung by lack of coke.

Foundrymen concede that iron supply is adequate for present melting rate but would like to accumulate inventory against the possibility that their business will show further improvement. Four-day work-week is common.

Near-capacity blast furnace level is regarded by scrap men as the basic reason for limited buying of dealer scrap. Mill use of hot metal is regarded as near absolute peak.

St. Louis—Slack foundry season has had no effect on demand for pig iron. Koppers' two blast furnaces remain near top output. One blower out, however, holds daily tonnage to 1000 instead of the usual 1050-1100 tons. An allotment system has long been in effect among old customers and most new shoppers are turned down.

Los Angeles—Mill-posted prices for steelmaking scrap, extending the present price level through July, have stabilized the market. Undertone of No. 1 cupola cast is soft, small sales being noted at $36-$37.

Scrap . . .

Scrap Prices, Page 122

Pittsburgh—Representative tonnage mill purchase of No. 1 heavy melting dealer scrap has been made at $40. Some mills have issued partial releases on shipments, previously held up, from brokers and dealers on commitments made at higher price levels. Little mill buying of any consequence is expected until shipments on these orders are completed. Railroad lists, scheduled to close late last week, should reflect $5 to $6 decline in industrial scrap market level of past two weeks. No change is noted in quotations on turnings or cast scrap grades. Prospect of full-scale war with Russia still considered remote by many trade authorities and, as a result, trend in prices continues downward.

Philadelphia—On the basis of new buying, prices on the major open-hearth grades of scrap have again declined. No. 1 heavy melting and No. 1 busheling are quoted $33, delivered; No. 2 heavy melting, $31; and No. 1 busheling, $32. No. 2 bundles are unchanged at $27-$27.50. Open-hearth grades are in easier supply, but shipments have been made difficult in some quarters because of continued shortage of gondolas.

Machine shop turnings are nominally off $1 to $23.00-$24.00 delivered and low phos punchings and plate, electric furnace grade, and low phos plate, 5 feet and under, are down slightly to $38.00. Electric furnace bundles and heavy turnings have been nominally reduced to $34.00 and $33.00, respectively, and knuckles and couplers and steel car wheels, to $40. Cast grades are unchanged.

Buffalo—Scrap market stiffened here last week as dealers withdrew offerings at prevailing prices. With collections dwindling, apprehension was apparent over the possibility of covering large orders at this time. Scrap continues to arrive from the East and upper lake ports via the canal and lakes.

New York—Scrap brokers have reduced buying prices on No. 1 heavy melting steel and No. 1 bundles to $29-$30, f.o.b. shipping point, and on No. 1 busheling to $27-$28. They are still offering $26-$27 on No. 2 heavy melting and have advanced price on No. 2 bundles to $25-$26. Machine shop turnings and mixed borings and turnings have been reduced to $17-$18. Trade in general is sluggish, most consumers falling back on tonnage under contract.

Cleveland—Undertone on the scrap market remains weak with brokers offering tonnages to mills at prices slightly below published quotations. No actual sales have been made, however, below $39.50 for No. 1 heavy. Plant production of scrap is somewhat lower, due to mass vacations, while consumption continues heavy. These factors will tend to keep prices from slipping much further.

Detroit—After closing of the recent booming automotive lists, the market turned quiet and a shade weaker, with mills out of the market. Broker sentiment is on the bearish side and another week may see lower quotations in view of jaded buyer interest.

Cincinnati—Mills are reducing scrap tonnage requirements for July, adding a weakening factor to the market. Foundries, planning July vacations, are buying lighter. Prices are unchanged. Material is coming out freely.

Chicago—Scrap market was in suspended animation on most grades last week, although a few items were supporting old price levels. One mill, having made a "token" purchase for July, is figured by traders to be out of the market until Labor Day. Cast grades are quiet, with many foundries on vacation this month. In the Tri-Cities area, all farm implement shops will vacation this month. Switchmen's strike is preventing some traders from making any shipments and is an important factor on scrap from southern shippers. Several large yards on struck roads, however, are using other facilities and are not completely helpless.

No. 1 railroad scrap is up 75 cents to a spread of $39.75-$40.75, brokers paying that much to cover recent orders. Cast iron borings are bringing $27-$28, with limited buying reported by foundries. Brokers, while reducing their buying prices of No. 1 heavy melting, show no willingness to lower their offering price of $38 to consumers. Although No. 2 bundles are a drug on the market, No. 1 bundles command $36-$37.

St. Louis—Scrap prices continue

to soften under slack demand. July mill buying has not yet started. Many foundries are closed or curtailed for vacation periods. Demand from outside markets has dropped off sharply. This was primarily responsible for a $3 to $4 drop in the local turnings quotations. Brokers expect continued easing tnrough July, followed by a pickup in August. Shipments to this district are fair.

San Francisco—Plentiful supplies of scrap are available. Mills are buying carefully, usually only for replenishment purposes. Prices remain firm.

Seattle—Scrap market is steady, mills receiving ample supplies. Recent prices increases have not stimulated shipments due to the limited scope of the local market because the largest buyer is not operating at capacity. Cast iron scrap is tighter, but foundries report sufficient for current needs at $25 to $30. Foreign pig iron of good analysis, at $7 below domestic prices, is serving plants in this area.

Warehouse . . .

Warehouse Prices, Page 119

Chicago — Some warehouses have raised prices 1.50 cents on those stainless products obtained from mills which have advanced quotations. One reports it will hold its sheet price firm as long as its supplier makes no change. Demand for stainless flat-rolled remains as at an unprecedentedly high level.

Lower mill quotas this quarter for most products are restricting supply at warehouses while demand is intensified by the same factor. When mills were forced to schedule new orders at lower levels to take care of second quarter arrearages many unsatisfied users hoped to alleviate the shortage with warehouse purchases.

Customer vacations are having little effect since overall demand remains in excess of warehouse ability to supply.

Philadelphia — Warehouse business is off due to suspensions at various metalworking plants for vacations. One leading jobber reports that 166 buyers on his list will observe vacations at one time or another during the first three weeks in July. Prices are unchanged.

Cincinnati—On basis of current ordering, steel distributors foresee slight, if any, letup in demand throughout the month. Vacations will not suspend deliveries, especially in sheets and plates, as fabricators face persisting shortages.

Los Angeles — Even pessimistic warehousemen in this district believe earliest possible decline of sales will be in first quarter of next year. Distributors are trying to maintain balanced supplies by careful scheduling of mill orders to avoid pyramiding. Heavy demand for both hot-rolled and cold-drawn bars has lowered stocks of these items.

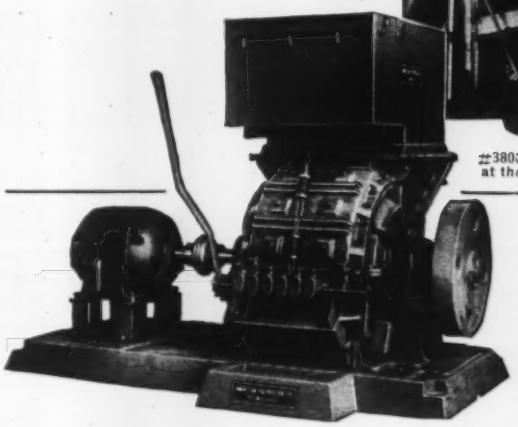
San Francisco—Distributors report active turnover. Volume in June was the best of any month so far this year.

Seattle — Warehouse volume con-

SOLVE SCRAP PROBLEMS PROFITABLY

with an AMERICAN RING METAL TURNINGS CRUSHER

Metal turnings reduced to uniform chips by an American #3800 Crusher are collected for oil reclamation at the Link-Belt Co.'s Ewart Plant, Indianapolis.



Reduced into uniform chips by American shredder ring action, long, curly turnings of steel, aluminum, brass etc. release valuable cutting oil much more freely—30 to 50 gallons per ton! Add the savings in storage and handling—plus the higher scrap value of short shoveling turnings—and it's easy to see why Americans pay for themselves . . . over and over again.

Send for your copy of "Crushing Turnings Profitably."

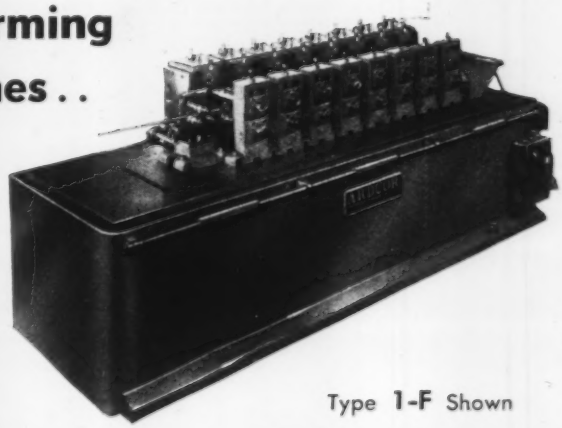
American PULVERIZER COMPANY

Originators and Manufacturers of Ring Crushers and Pulverizers

1539 MACKLIND AVE.
ST. LOUIS 10, MO.

ARDCOR

Roll Forming Machines . .



Type 1-F Shown

ARDCOR All Steel Constructed Roll Forming Machines are built in standard sizes to take material up to 50 inches in width and ⅜ inches thick. Consult our engineering department without obligation.

ARDCOR SPECIALTIES

ARDCORLOY ROLLER DIES ● ROLL FORMING MACHINERY ● FLYING SHEAR AND CUT-OFF MACHINES ● CRADLE REELS ● SPECIAL PRODUCTION MACHINERY

American ROLLER DIE CORPORATION

20700 St. Clair Avenue • Cleveland 17, Ohio

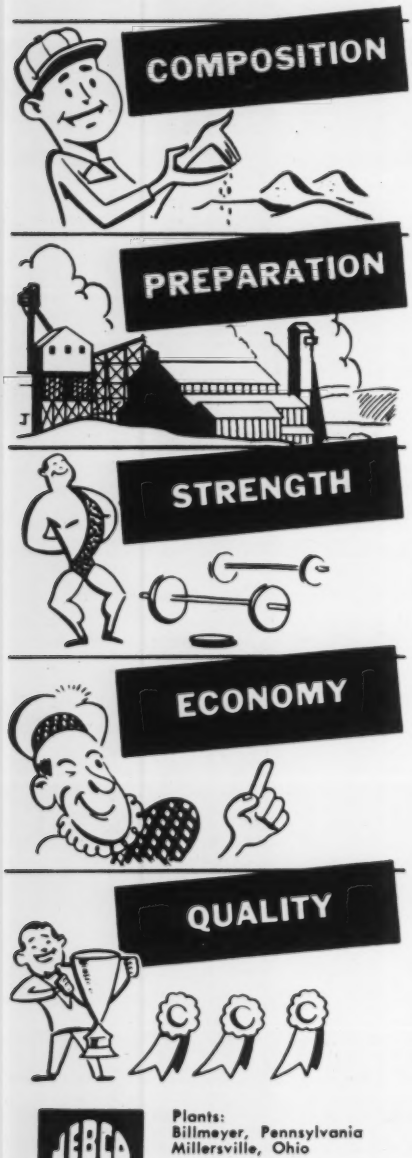
The original dead-burned dolomite refractory

BAKER'S

MAGDOLITE

always

5 WAYS BETTER



JEBCO PRODUCTS

Plants:
Billmeyer, Pennsylvania
Millersville, Ohio

Makers of Baker's Magdolite

THE J. E. BAKER COMPANY

YORK, PENNSYLVANIA

tinues to improve as season's construction activity reaches its peak. All out-of-stock items are in good demand, except machine tools which are slow due to war time surpluses. Galvanized sheets are somewhat easier but hot-rolled sheets, particularly 10 and 12 gage, continue extremely scarce.

Aluminum Output Off Slightly

Washington — Output of primary aluminum in April was 58,024 short tons or slightly below the longer month of March, reports the Bureau of Mines. Production amounted to 58,747 tons in March and 54,076 in April, 1950. Total for the first four months came to 219,462 tons against 212,033 tons in the like 1949 period. Production from a third pot line of the Reynolds Metals Co.'s plant at Jones Mills, Ark., was begun on Apr. 24. Monthend stocks increased from 11,628 tons to 13,637 tons, reversing a six-month downward trend and indicating that inventories were near minimum operating levels.

STRUCTURAL SHAPES . . .

STRUCTURAL STEEL PLACED

12,000 tons, "Gate Way" office buildings, Equitable Assurance Society of United States, Pittsburgh, through Starret Bros. & Eken Inc., New York, to American Bridge Co., Pittsburgh.

6000 tons, transmission towers for Bonneville Power Administration, awarded to unnamed fabricator at Tulsa, Okla.

2620 tons, warehouse and bakery, American Stores, Philadelphia, through Hughes Foulkrod, that city, to Lehigh Structural Steel Co., Allentown, Pa.

1600 tons, Mystic pier, Boston, to Bethlehem Steel Co.; Merritt-Chapman & Scott Corp., Boston, general contractor.

1480 tons, contract No. 36, New Jersey turnpike bridge work in Burlington and Mercer counties, through George M. Brewster & Son Inc., Bogota, N. J., to Lehigh Structural Steel Co., Allentown, Pa.

600 tons, high school, Doylestown, Pa., through Wark & Co., Philadelphia, to Lehigh Structural Steel Co., Allentown, Pa.

550 tons, housing project, Worcester, Mass., to United Structural Co., Worcester.

500 tons, 446-foot, four-span I-beam bridge, Townshend, Vt., to Vermont Structural Steel Corp., Burlington, Vt.; William H. Morse Lumber & Construction Co. Inc., Bennington, Vt., general contractor.

350 tons, shapes and bars, classroom building, Boston College, Newton, Mass., to Bethlehem Fabricators Inc., Bethlehem, Pa. and Northern Steel Inc., Boston; Volpe Construction Co., Malden, Mass., general contractor.

350 tons, W. T. Grant Co. store, Worcester, Mass., to Haarmann Structural Steel Co., Holyoke, Mass.

325 tons, administration building, Philadelphia Electric Co., Ardmore, Pa., to Belmont Iron Works, Eddystone, Pa.

270 tons, warehouse, Raub Supply Co., Harrisburg, Pa., to Bethlehem Contracting Co., Bethlehem, Pa.

100 tons, two stop-log derricks for McNary dam, to Washington Iron Works, Seattle, by U. S. Engineer, Walla Walla, Wash.

Unstated, Oregon state Willamette river bridge, Eugene, Oreg., to Consolidated Western Steel Corp., Los Angeles.

STRUCTURAL STEEL PENDING

1553 tons, state bridge work, Venango county, Pennsylvania; bids July 28.

659 tons, state bridge work, Schuylkill county, Pennsylvania; bids July 28.

620 tons, 382-ft multiple span rolled beam viaduct, Derby, Conn.; Mariani Construction Co., Westport, Conn., low; work also takes 160 tons reinforcing bars and 151 sq ft open steel grid floor.

465 tons, five span double leaf bascule bridge, Grand Isle-North Hero, Vt.; bids postponed June 29.

414 tons, state bridge work, York county, Pennsylvania; bids July 28.

300 tons, warehouse, Richmond Grocery Co., Philadelphia; bids July 11.

300 tons, Mayview State Hospital, Allegheny county, Pennsylvania; bids July 19.

250 tons, office, Scott Paper Co., Chester, Pa.; bids July 14.

185 tons, Montana state highway bridge; Edward Delabow, low.

175 tons, Montana state highway bridge; W. P. Roscoe, Billings, low.

159 tons, shapes(89) and bars(70), state bridge, Greenfield, Mass.; Kelleher Corp., Turners Falls, Mass., general contractor.

145 tons, state bridge work, Jefferson county, Pennsylvania; bids July 28.

138 tons, state bridges, Sunderland(77) and Rutland, Vt.(61); bids July 12-13, Montpelier.

136 tons, Leipsic state bridge, Kent county, Delaware; bids July 26.

130 tons, state highway bridge, Allegheny county, Pennsylvania; bids July 21.

110 tons, Staples Point bridge, Presumpscot river, Falmouth, Me.; bids July 12, Augusta.

100 tons, Pennsylvania Railroad bridge repairs, Pittsburgh; bids July 10.

Unstated, spillway and other extension work, Diablo dam, Seattle city light project; Morrison-Knudsen Co., Seattle, low, $1,942,567.

Unstated, bleachers and other improvements, including cooling equipment, Seattle Ice Arena; bids in July 12.

Unstated, Chief Joseph dam; general award to Peter Kiewit Sons Co., Longview, Wash., low $2,572,544 to U. S. Engineer, Seattle.

REINFORCING BARS . . .

REINFORCING BARS PLACED

200 tons, Spokane Eastern bank, Spokane, Wash., to Bethlehem Pacific Coast Steel Corp., Seattle; Max Kuney, Spokane, contractor.

100 tons, Security Market addition, Seattle, to Bethlehem Pacific Coast Steel Corp., Seattle.

REINFORCING BARS PENDING

413 tons, state bridge work, Westmoreland county, Pennsylvania; bids July 28.

331 tons, state bridge work, Schuylkill county, Pennsylvania; bids July 28.

275 tons, Columbia Basin projects; J. A. Terteling & Sons, Boise, Idaho, low to Bureau of Reclamation, $878,717 and $512,247 respectively.

100 tons, two Washington state highway projects; bids in.

Unstated, student union building, Washington State College, Pullman; negotiated contract to Henry George & Sons, Spokane, $2,272,000.

Unstated, five bridge replacements, Yakima county, Washington; general contract to C. & E. Construction Co., Yakima, $52,706.

Unstated, addition to Olympic Memorial hospital, Port Angeles, Wash.; general award recommended for J. G. Watts Construction Co., Seattle, low, $598,991.

Unstated, Station P/6 military installation; general contract to Morrison-Knudsen Co., Seattle, low $847,860.

Unstated, 3-unit addition St. Joseph hospital, Aberdeen, Wash.; General Construction Co., Seattle, apparently low $1,450,361.

PLATES . . .

PLATES PLACED

135 tons, fuel oil storage tank, Philadelphia Electric Co., Philadelphia, to Graver Tank & Mfg. Co. Inc., E. Chicago, Ind.

PLATES PENDING

100 tons, sheet piling and unstated tonnage for 54-in. siphon, two Columbia Basin projects; J. A. Terteling & Sons, Boise, Idaho, low on both.

Unstated, elevated steel tank and water system extension; bids to Rainier, Wash., J. M. Kearns clerk, July 20.

PIPE . . .

STEEL PIPE PENDING

Unstated, 2430 ft 8 and 6 in. steel pipe; bids to Moses Lake, Wash., July 12.

RAILS, CARS . . .

LOCOMOTIVES PLACED

New York Central, fourteen 1500-hp road switching and seven 1200-hp yard switching diesel-electric locomotive units to the Electro-Motive Div., General Motors Corp., La Grange, Ill.

Norfolk & Western, 15 coal-burning switching locomotives, to own shops.

Seaboard Air Line, 46 diesel-electric locomotives; nineteen 1600-hp freight and four 1600-hp general service units, to the American Locomotive-General Electric Companies, Schenectady, N. Y.; fifteen 1500-hp freight and eight 1500-hp general service units, to the Electro-Motive Division, General Motors Corp., La Grange, Ill.

RAILROAD CARS PLACED

Ann Arbor, 75 seventy-ton covered hopper cars, to the Pullman-Standard Car Mfg. Co., Chicago.

Gulf, Mobile & Ohio, 200 fifty-ton automobile box cars, to American Car & Foundry Co., New York.

Norfolk & Western, 1000 seventy-ton hopper coal cars, to own shops.

RAILROAD CARS PENDING

Boston & Maine, 500 fifty-ton box cars; bids asked.

Maine Central, 250 fifty-ton box cars; bids asked.

RAILS PLACED

Canadian Pacific, 22 miles of 135-lb rail and 406 miles of 100-lb rail, to Algoma Steel Corp., Sault Ste. Marie, Ont.

Chicago & Eastern Illinois, 11 miles of 115-lb rail and 3.15 miles of 115-lb rail for replacement at two different points respectively, to Carnegie-Illinois Steel Corp.

Norfolk Southern, 300 tons, to Bethlehem Steel Co.

FERROALLOYS

(*Continued from Page 119*)

Foundry Ferrochrome: (Cr 62-66%, C 5-7%). Contract, c.l., 8MxD, bulk, 22.0c per lb of contained Cr, c.l., packed 22.9c, ton 24.25c, less ton 26.0c. Delivered. Spot, add 0.25c.

Low-Carbon Ferrochrome: (Cr 67-72%). Contract, carload, lump, bulk, max. 0.03% C 31.85c per lb of contained Cr, 0.04% C 29.75c, 0.06% C 28.75c, 0.10% C 28.25c-28.5c, 0.15% C 28.0c, 0.20% C 27.75c, 0.50% C 27.5c, 1% C 27.25c, 1.50% C 27.1c, 2% C 27.0c. Carload packed add 1.1c, ton lot add 2.2c, less ton add 3.9c. Delivered. Spot, add 0.25c.

"SM" Low-Carbon Ferrochrome: (Cr 62-66%, Si 4-6%, Mn 4-6%, C 0.75-1.25% max.). Contract, carload, lump, bulk 27.75c per lb of contained chromium, carload, packed 28.85c, ton lots 30.05c, less ton 31.85c. Delivered. Spot, add 0.25c.

Low-Carbon Ferrochrome, Nitrogen Bearing: Add 5c to 0.10% C low-carbon ferrochrome prices for approx. 0.75% N. Add 5c for each 0.25% of N above 0.75%.

Low-Carbon Ferrochrome Silicon: (Cr 34-41%, Si 42-49%, C 0.05% max.) Contract, carload, lump, 4" x down and 2" x down, bulk, 20.50c per lb of contained chromium plus 11.30c per pound of contained silicon; 1" x down, bulk 20.65c per pound of contained chromium plus 11.50c per pound of contained silicon. F.o.b. plant; freight allowed to destination.

Chromium Metal: (Min. 97% Cr and 1% Fe). Contract carload, 1" x D; packed, max 0.50% C grade, $1.03 per lb of contained chromium.

World's Finest

HEAVY DUTY FORK TRUCK

3 Sizes: 5, 7½, 10 ton cap.

Made by the Makers of KRANE KAR

SILENT HOIST & CRANE CO.

849 63rd Street
Brooklyn 20, N. Y.

The Proof of Quality Is in PERFORMANCE

For many years, "HERCULES" (Red-Strand) Wire Rope has been proving its outstanding quality by the accurate yardstick of performance — on all sorts of tough jobs. Such *consistent* performance is not a matter of chance. Design . . . rigid tests and inspections . . . equipment . . . firm standards — are essential factors.

We Invite Your Inquiries

MADE ONLY BY

A. LESCHEN & SONS ROPE CO. 5909 KENNERLY AVE. • ST. LOUIS, MO.

ESTABLISHED 1857

New York 6 · Chicago 7 · Birmingham 6 · Houston 3 · Denver 2 · Los Angeles 21 · San Francisco 7 · Portland 9 · Seattle 4

ton lot $1.05, less ton $1.07. Delivered. Spot, add 5c.

Silicon Alloys

25-30% Ferrosilicon: Contract, carload, lump, bulk, 17.00c per lb of contained Si; packed 18.40c; ton lot 19.50c, f.o.b. Niagara Falls, N. Y., freight not exceeding St. Louis rate allowed.

50% Ferrosilicon: Contract, carload, lump, bulk, 11.3c per lb of contained Si, carload packed 12.9c, ton lot 14.35c, less ton 16c. Delivered. Spot, add 0.45c.

Low-Aluminum 50% Ferrosilicon: (Al 0.40% max.) Add 1.3c to 50% ferrosilicon prices.

75% Ferrosilicon. Contract, carload, lump, bulk, 13.5c per lb of contained Si, carload packed 14.8c, ton lot 15.95c, less ton 17.2c. Delivered. Spot, add 0.8c.

80-90% Ferrosilicon: Contract, carload, lump, bulk, 14.65-15.0c per lb of contained Si, carload packed 15.9c, ton lot 16.9c, less ton 18.05c. Delivered. Spot, add 0.25c.

Low-Aluminum 85% Ferrosilicon: (Al 0.50% max.). Add 0.7c to 85% ferrosilicon prices.

90-95% Ferrosilicon: Contract, carload, lump, bulk, 16.5c per lb of contained Si, carload packed 17.7c, ton lot 18.65c, less ton 19.7c. Delivered. Spot, add 0.25c.

Low-Aluminum 90-95% Ferrosilicon: (Al 0.50% max.). Add 0.7c to above 90-95% ferrosilicon prices.

Silicon Metal: (Min. 97% Si and 1% max. Fe). C.l. lump, bulk, regular 19.0c per lb of Si, c.l. packed 20.2c, ton lot 21.1c, less ton 22.1c. Add 1.5c for max. 0.10% calcium grade. Deduct 0.4c for max. 2% Fe grade analyzing min. 96% Si. Spot, add 0.25c.

Alsifer: (Approx. 20% Al, 40% Si, 40% Fe). Contract, basis f.o.b. Niagara Falls, N. Y., lump, carload, bulk, 7.65c per lb of alloy, ton lots packed 9.05c, 200 to 1999 lb 9.40c, smaller lots 9.90c. Delivered. Spot up 0.5c.

Briquetted Alloys

Chromium Briquets: (Weighing approx. 3¾ lb each and containing exactly 2 lb of Cr). Contract, carload, bulk, 13.75c per lb of briquet, carload packed 14.45c, ton lot 15.25c, less ton 16.15c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Ferromanganese Briquets: (Weighing approx. 3 lb and containing exactly 2 lb of Mn). Contract, carload, bulk 10.45c per lb of briquet, c.l. packaged 11.25c, ton lot 12.05c, less ton 12.45c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Silicomanganese Briquets: (Weighing approx. 3½ lb and containing exactly 2 lb of Mn and approx. ½ lb of Si). Contract, c.l. bulk 10.30c, per lb of briquet, c.l. packaged 11.1c, ton lot 11.9c, less ton 12.8c. Delivered. Add 0.25c for notching. Spot, add 0.25c.

Silicon Briquets: (Large size—weighing approx. 5 lb and containing exactly 2 lb of Si). Contract, carload, bulk 6.15c per lb of briquet, c.l. packed 6.95c, ton lot 7.75c, less ton 8.65c. Delivered. Spot, add 0.25c.
(Small size—weighing approx. 2½ lb and containing exactly 1 lb of Si). Carload, bulk 6.30c, c.l. packed 7.10c, ton lots 7.90c, less ton 8.80c. Delivered. Add 0.25c for notching, small size only. Spot, add 0.25c.

Molybdic-Oxide Briquets: (Containing 2½ lb of Mo each) 95.00c per pound of Mo contained. F.o.b. Langeloth, Pa.

Calcium Alloys

Calcium-Manganese-Silicon: (Ca 16-20%, Mn 14-18% and Si 53-59%.) Contract, carload, lump, bulk 19.25c per lb of alloy, carload packed 20.05c, ton lot 21.55c, less ton 22.55c. Delivered. Spot add 0.25c.

Calcium-Silicon: (Ca 30-33%, Si 60-65%, Fe 1.50-3%). Contract, carload, lump, bulk 17.9c per lb of alloy, carload packed 19.1c, ton lot 21.0c, less ton 22.5c. Delivered. Spot add 0.25c.

Titanium Alloys

Ferrotitanium, Low-Carbon: (Ti 20-25%, Al 3.5% max., Si 4% max., C 0.10% max.) Contract, ton lots 2" x D, $1.40 per lb of contained Ti; less ton $1.45. (Ti 38-43%, Al 8% max., Si 4% max., C 0.10% max.) Ton lot $1.28, less ton $1.35, f.o.b. Niagara Falls, N. Y., freight allowed to St. Louis. Spot, add 5c.

Ferrotitanium, High-Carbon: (Ti 15-18%, C 6-8%). Contract $167 per net ton, f.o.b. Niagara Falls, N. Y., freight allowed to destinations east of Mississippi river and north of Baltimore and St. Louis.

Ferrotitanium, Medium-Carbon: (Ti 17-21%, C 3-4.5%.) Contract, $183 per ton, f.o.b. Niagara Falls, N. Y., freight not exceeding St. Louis rate allowed.

Vanadium Alloys

Ferrovanadium: Open-hearth Grade (Va 35-55%, Si 8-12% max., C 3-3.5% max.). Contract, any quantity, $2.90 per lb of contained Va. Delivered. Spot, add 10c. **Crucible-Special Grades** (Va 35-55%, Si 2-3.5% max., C 0.5-1% max.), $3. **Primos and High Speed Grades** (Va 35-55%, Si 1.50% max., C 0.20% max.) $3.10.

Grainal: Vanadium Grainal No. 1, 93c per lb; No. 6, 63c; No. 79, 45c, freight allowed.

Vanadium Oxide: Contract, less carload lots $1.20 per lb contained V_2O_5, freight allowed. Spot, add 5c.

Tungsten Alloys

Ferrotungsten: (70-80%). Contract, 10,000 lb W or more, $2.25 per lb of contained W; 2000 lb W to 10,000 lb W, $2.35; less than 2000 lb W, $2.47. Spot, add 2c.

Tungsten Powder: (W 98.8% min.). Contract or spot, 1000 lb or more, $2.90 per lb of contained W; less than 1000 lb W, $3.

Zirconium Alloys

12-15% Zirconium Alloys: (Zr 12-15%, Si 39-43%, Fe 40-45%, C 0.20% max.). Contract, c.l., lump, bulk 6.6c per lb of alloy, c.l. packed 7.35c, ton lot 8.1c, less ton 8.95c. Delivered. Spot, add 0.25c.

35-40% Zirconium Alloy: (Zr 35-40%, Si 47-52%, Fe 8-12%, C 0.50% max.). Contract carload, lump, packed 20.25c per lb of alloy ton lot 21c, less ton 22.25c. Freight allowed. Spot, add 0.25c.

Boron Alloys

Ferroboron: (B 17.50% min., Si 1.50% max., Al 0.50% max., C 0.50% max.). Contract, 100 lb or more, 1" x D, $1.20 per lb of alloy. Less than 100 lb $1.30. Delivered. Spot, add 5c. F.o.b. Washington, Pa., prices 100 lb and over are as follows: Grade A (10-14% B) 75c per pound; Grade B (14-18% B) $1.20; Grade C (19% min. B) $1.50.

Borosil: (3 to 4% B, 40 to 45% Si), $4.25 per lb contained B, f.o.b. Philo, O., with freight not to exceed railroad freight allowed to destination.

Bortam: (B 1.5-1.9%). Ton lots, 45c per lb; smaller lots, 50c per lb.

Carbortam: (B 1 to 2%) contract, lump carloads 9.50c per lb, f.o.b. Suspension Bridge, N. Y., frt allowed same as high-carbon ferrotitanium.

Other Ferroalloys

Ferrocolumbium: (Cb 50-60%, Si 8% max., C 0.4% max.). Contract, ton lot, 2" x D, $3.50 per lb of contained Cb, less ton $3.55. Delivered. Spot, add 10c.

Ferrotantalum—Columbium: (Cb 40% approx., Ta 20% approx., and Cb and Ta 60% min. C 0.30 max.) ton lots, 2" x D, $2.67 per lb of contained Cb plus Ta, delivered; less ton lots $2.72.

CMSZ Mixes: (No. 4—Cr 45-49%, Mn 4-6%, Si 18-21%, Zr 1.25-1.75%, C 3-4.5%; No. 5—Cr 50-56%, Mn 4-6%, Si 13.50-16.0%; Zr 0.75-1.25%, C 3.50-5%). 12 M x D, carload packed 19.0c per lb of material, ton lot 19.75c, less ton 21.0c. Delivered.

Silcaz Alloy: (Si 35-40%, Ca 9-11%, Al 6-8%, Zr 3-5%, Ti 9-11%, B 0.55-0.75%). Carload packed, 1" x D, 43c per lb of alloy, ton lot 45c, less ton 47c. Delivered.

SMZ Alloy: (Si 60-65%, Mn 5-7%, Zr 5-7%, Fe 20% approx.). Contract, carload, packed, ½" x 12 M, 16.5c per lb of alloy, ton lots 17.50c, less ton 18.5c. Delivered. Spot, add 0.25c.

Graphidox No. 4: (Si 48-52%, Ca 5-7%, Ti 9-11%). C.l. packed, 17.0c per lb of alloy; ton lots 18.0c; less ton lots 19.50c, f.o.b. Niagara Falls, N. Y.; freight allowed to St. Louis.

V-5 Foundry Alloy: (Cr 38-42%, Si 17-19%, Mn 8-11%). C.l. packed, 14.25c per lb of alloy; ton lots 15.75c; less ton lots 17.00c, f.o.b., Niagara Falls, N. Y.; freight allowed to St. Louis.

Simanal: (Approx. 20% each Si, Mn, Al). Lump, bulk, carload 11.00c. Ton lots, bulk 11.50c, packed 11.75c. Less ton lots, packed 12.25c per lb of alloy, f.o.b. Philo, O., with freight not to exceed railroad freight allowed to destination.

Ferrophosphorus: (23-25% based on 24% P content with unitage of $3 for each 1% of P above or below the base); carloads, f.o.b. seller's works, Mt. Pleasant, or Siglo, Tenn., $65 per gross ton.

Ferromolybdenum: (55-75%). Per lb. contained Mo, f.o.b. Langeloth and Washington, Pa., furnace, any quantity $1.13.

Technical Molybdic-Oxide: Per lb. contained Mo., f.o.b. Langeloth and Washington, Pa., packed in bags containing 20 lb of molybdenum, 95.00c.

TIE IT TIGHT... that means GERRARD!

Steel sheets packed for export are tied securely with Gerrard Round Steel Strapping. Stacked bundles slide over each other easily without breaking straps.

● Because it's round, Gerrard Steel Strapping grips corners *evenly*, and the stress at each corner of the package is distributed *through the strap's diameter*. That gives you the benefit of Gerrard's full strength at every corner, and the danger of breakage due to internal stress is practically eliminated. Your packages are safer in transit, too, and damage claims are sharply reduced.

You get this added protection at low cost. *Gerrard Round Steel Strapping costs about 40% less than any other metal reinforcement.*

Gerrard Steel Straps come in a wide range of gauges and can be used to reinforce packages of every size and weight from light parcel post bundles to carload shipments of steel plate and pipe.

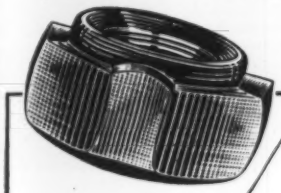
Find out how the use of Gerrard Round Steel Strapping can help your packaging operations. The services of Gerrard Engineers are available to you free of charge. Send for a free copy of *The Blue Book of Packaging*. **Gerrard Steel Strapping Company, 4745 Richmond Street, Chicago, Ill.**

USS

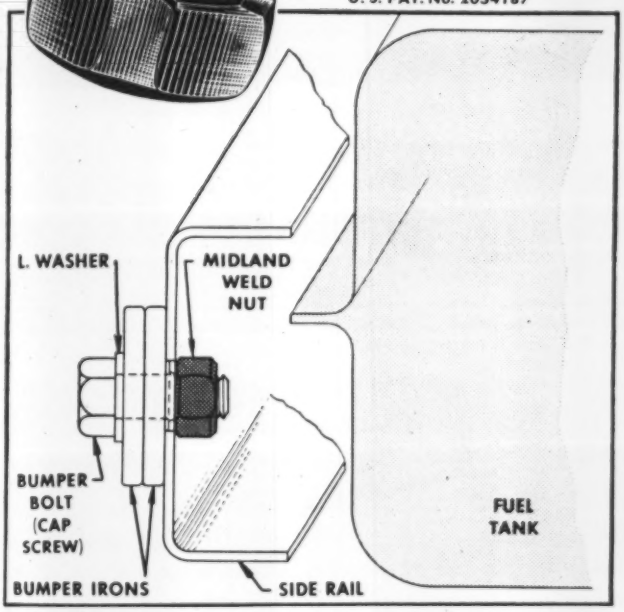
GERRARD
ROUND STEEL STRAPPING

UNITED STATES STEEL

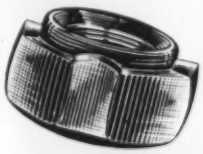
Another "BLIND SPOT" SOLVED BY MIDLAND WELDING NUTS



U. S. PAT. No. 2054187



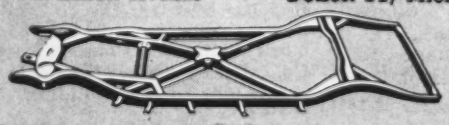
Sectional view showing Midland Welding Nut in a location where hexagon nut cannot be used due to inaccessibility.



Solve *your* production problems created by hard-to-get-at places by using Midland Welding Nuts. Write or phone for complete information.

The MIDLAND STEEL PRODUCTS CO.

6670 Mt. Elliott Avenue • Detroit 11, Michigan



WORLD'S LARGEST MANUFACTURERS OF AUTOMOBILE FRAMES—

LO-HED is America's finest hoist—yet COSTS NO MORE!

IT DOESN'T TAKE an extra dollar to buy a LO-HED Electric Hoist, but a LO-HED gives you a lot more for your money. It lifts loads higher because it has no working parts under the track or "I" beam. With A. C. push button operation, LO-HED has a transformer that protects operators. Its bottom block is shrouded for additional safety. Electrical cables are modern and abrasion resistant.

LO-HED Hoists come in five suspension types and from ¼ ton to 12 tons capacity. Units can be engineered for your own specific needs.

LO-HED MEANS LOW OVERHEAD

AMERICAN ENGINEERING COMPANY

PHILADELPHIA 25, PA.

AE Products are: Taylor and Perfect Spread Stokers, Marine Deck Auxiliaries, Hele Shaw and Hydramite Fluid Power, Lo Hed Car Shakers, Car Pullers, Hoists

American Engineering Company
2508 Aramingo Ave., Phila. 25, Pa.
Gentlemen: Send me full information about LO-HED Electric Hoists.

Name .....

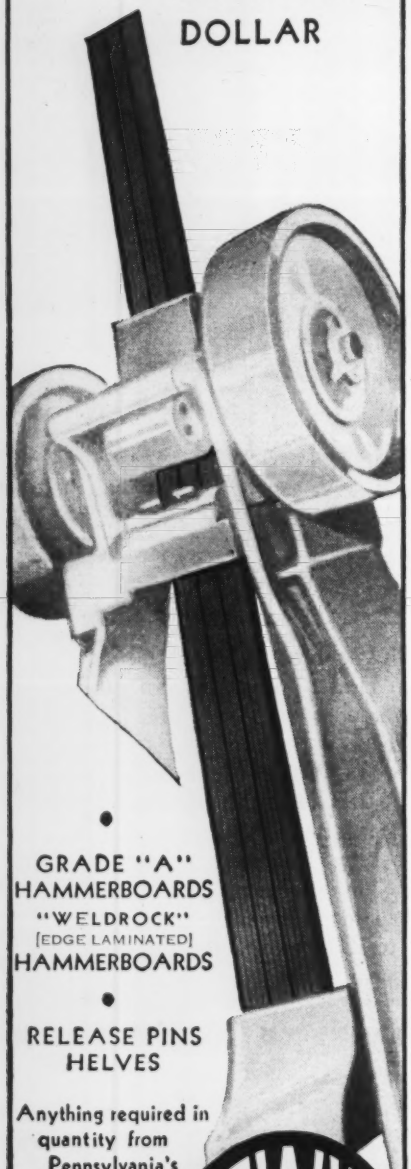
Company .....

Address .....

City ..... State .....

IRWIN

MORE FORGINGS
per
HAMMERBOARD
DOLLAR



•

GRADE "A"
HAMMERBOARDS
"WELDROCK"
[EDGE LAMINATED]
HAMMERBOARDS

•

RELEASE PINS
HELVES

Anything required in quantity from Pennsylvania's hard woods—maple and cherry

IRWIN
50 YEARS
of Quality

IRWIN
MANUFACTURING CO., INC.
GARLAND, PA.

Distributed by
JOHN H. SIPCHEN CO.
549 Washington Blvd., Chicago, Ill.
FRANK G. SHAUB
14456 Scripps Ave., Detroit, Mich.
BRETT'S PATENT LIFTER CO., LTD.
Foleshill Works • Coventry, England

Metalworking Briefs

CONSTRUCTION, ENTERPRISE
ORGANIZATIONAL CHANGES

California

California Cold Rolled Steel Corp., Los Angeles, increased annealing capacity by 40 per cent with installation of a fourth annealing furnace. Construction of additional office facilities started on 3½ acres alongside the plant.

California

Consolidated Engineering Corp., Pasadena, Calif., started construction of a $500,000 plant on the Hastings Ranch site in eastern Pasadena. Facilities for manufacturing electronic analytical instruments, now located in six locations, will be centered in the new plant, scheduled for completion by Jan. 1.

California

Rome Cable Corp., Rome, N. Y., started work on a $65,000 warehouse building in San Francisco.

California

California Packing Corp., San Francisco, scheduled completion of its office building for Dec. 1 and expects to move into the new quarters early next year. The company is converting the warehouse formerly occupied by Butler Bros. into modern office quarters at a cost of $1.5 million.

California

Union Carbide & Carbon Corp., New York, consolidated its western headquarters and divisions at a new site at 22 Battery St., San Francisco.

Delaware

Rock-Seiman & Company Inc., iron and steel, has been chartered by the corporation department of the secretary of state's office at Dover, Del. **Corporation Service Co.,** Delaware Trust Bldg., Wilmington, Del., is serving as the principal office.

Illinois

American Cyanamid Co., New York, will begin construction soon of a $3 million plant in East Chicago, Ill. The new plant will produce cracking catalysts and will increase the company's capacity for producing synthetic catalysts by more than 50 per cent.

Illinois

Baker Mfg. Co., Tenth St. and Stanford Ave., Springfield, Ill., awarded the general contract for construction of a $150,000 plant addition to E. R. Jones, 1030 W. Reynolds St., that city. Murray S. Hanes, 205½ S. Sixth St., is the architect.

Illinois

McDonnell & Miller Inc.—safety controls—moved its general offices and plant to 3500 N. Spaulding Ave., Chicago 18.

Illinois

Industrial Products Division, **Elgin National Watch Co.,** formerly at Aurora, Ill., will be relocated by Aug. 1 at Elgin, Ill., in the company's main plant. Space in the plant is available through transfer of certain watchmaking functions to the company's new plant in Lincoln, Nebr.

Indiana

Noblitt-Sparks Industries Inc., Columbus, Ind., changed its name to Arvin Industries Inc. Policies of the company and the status of its divisions remain unchanged.

Kentucky

Stone & Webster Engineering Corp., Boston, has a contract with Tennessee Gas Transmission Co., Greensburg, Ky., to construct and operate a $12 million extraction and recovery plant adjacent to its natural gas pipeline system.

Michigan

Fisher & Co., Detroit, will build a $10 million office building at Second and W. Grand Blvds., that city. Construction is scheduled to start Oct. 1; completion, early in 1951. Charles T. Fisher is president of the company.

Michigan

Manufacturers Plating Corp., Detroit, completed a new plant with modernized equipment at 5075 14th St., that city. Edward Kahn is general manager.

Michigan

A. F. Holden Co.—metallurgical engineer—moved its executive offices from New Haven, Conn., to 11300 Schaefer Highway, Detroit 27. The company will conduct manufacturing operations at the Detroit and New Haven plants.

Mississippi

Hercules Powder Co., Wilmington, Del., is planning the construction of a second unit for the manufacture of toxaphene at Hattiesburg, Miss. The plant is expected to increase production of toxaphene by almost 50 per cent. Construction is expected to begin immediately, with the plant to be ready for use by next February.

Missouri

Mesker Bros. Iron Co., Robertson, Mo., has started work on a new manufacturing and office building on Brown Rd. Total investment, including machinery, is $500,000.

Nevada

Basic Refractories Inc., Cleveland, awarded a contract for a kiln at its Gabbs, Nev., plant to MacDonald Engineering Co., Los Angeles. The new facility will reduce shipping weight of magnesite produced at Gabbs by 58 per cent, permitting the finished refractories to be produced in Nevada. Previously it was necessary to ship raw magnesite to the Basic Refractories plant at Maple Grove, O., for final finishing.

New York

Horrocks-Ibbotson Co., Utica, N. Y., acquired the stock, patents, tools and good will of Robotrol Inc., South Bend, Ind., producer of fishing tackle.

New York

Chaffee Design & Mfg. Co., East Aurora, N. Y., designers and builders of special production and packaging machinery, appointed **Keller Industrial Products,** Rochester, N. Y., as its representative in the western New York area.

New York

Knickerbocker Main St. Corp., New York, will start construction this month of a building at Bridge Plaza N. and 21st St., Long Island City, N. Y. The building will be leased to **Graybar Electric Co.** to house offices and warehouse of Graybar's New York district. **Pioneer Engineering Co.,** Jersey City, N. J., is general contractor for the building.

Ohio

Cousino Metal Products Inc. combined all of the facilities and person-

COWLES

GANG SLITTING

OVER 30 YEARS EXPERIENCE

Standard for Service and Durability. Ground to extremely close Tolerances and Finish. Made by *Toolmakers.*

COWLES TOOL COMPANY
2086 W. 110th ST. CLEVELAND 2, OHIO

OHIO LOCOMOTIVE CRANES

25 TO 40 TON CAPACITY

GASOLINE • DIESEL
ELECTRIC • STEAM

THE OHIO LOCOMOTIVE CRANE CO.
BUCYRUS, OHIO

Warehouse Specialists in STEEL TUBING exclusively!

Seamless and Welded
Stainless, Alloy and Carbon Steels
For Mechanical and Pressure Use

TUBE DISTRIBUTORS CO., INC.
146 GREEN STREET, BROOKLYN 22, N. Y., EVergreen 9-6000

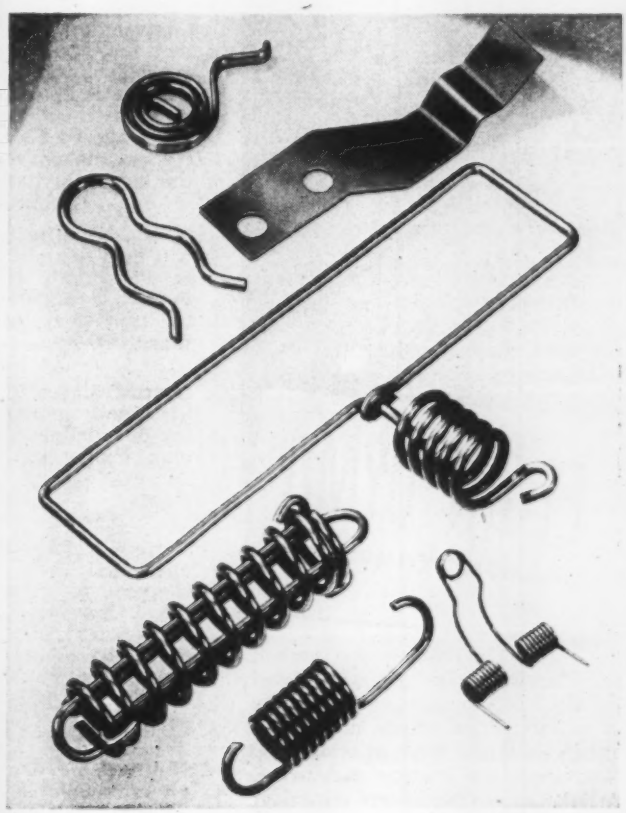
• PICKLING TANKS •
• PLATING TANKS •
• ANODIZE TANKS •
HEATING UNITS FOR ACID TANKS
HEIL PROCESS EQUIPMENT CO.
12063 ELMWOOD AVE. CLEVELAND, OHIO

INTRODUCTION TO THE STUDY OF HEAT TREATMENT OF METALLURGICAL PRODUCTS
By Albert Portevin

Fundamental knowledge and essential principles of heat treatment of steel are presented in simple and understandable manner. Research engineers, metallurgical students and steel plant metallurgists engaged in metallurgical investigations and the heat treatment of ferrous and non-ferrous metals will find this book of inestimable value.

246 pages — 4 tables
69 illustrations — Price $5.00 Postpaid

THE PENTON PUBLISHING CO.
Book Department, 1213 W. 3rd St., Cleveland 13, O.



• Here at U. S. Steel Wire Spring we're less interested in merely producing tonnage—*more* interested in producing the spring that is exactly right for the job. If you have a spring problem involving an unusual spring application, our engineers are prepared to help you. They are experienced in fitting the spring to the need and can recommend a type that is best for economy and serviceability. Write or call today for this service at no obligation.

No order too large or too small

The U. S. STEEL WIRE SPRING Co.
7800 FINNEY AVE. • MICHIGAN 1-6318
CLEVELAND 5, OHIO